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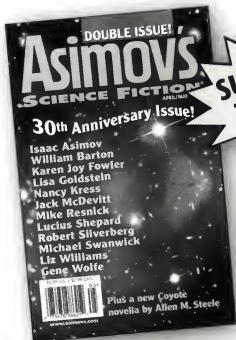
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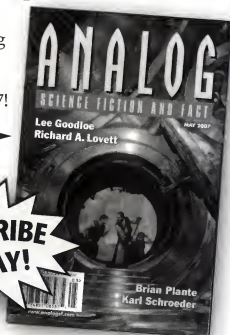
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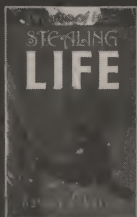
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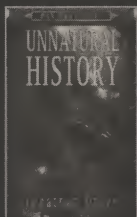
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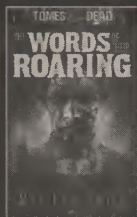
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Asimov's Science Fiction, ISSN 1065-2698, Vol. 31, No. 8, Whole No. 379, August 2007, GST #R123293128. Published monthly except for two combined double issues in April/May and October/November by Dell Magazines, a division of Crosstown Publications. One year subscription \$43.90 in the United States and U.S. possessions. In all other countries \$53.90 (GST included in Canada), payable in advance in U.S. funds. Address for subscription and all other correspondence about them, 6 Prowitt Street, Norwalk, CT 06855. Allow 6 to 8 weeks for change of address. Address for all editorial matters: *Asimov's Science Fiction*, 475 Park Avenue South, New York, N.Y. 10016. *Asimov's Science Fiction* is the registered trademark of Dell Magazines, a division of Crosstown Publications. © 2007 by Dell Magazines, a division of Crosstown Publications, 6 Prowitt Street, Norwalk, CT 06855. All rights reserved, printed in the U.S.A. Protection secured under the Universal and Pan American Copyright Conventions. Reproduction or use of editorial or pictorial content in any manner without express permission is prohibited. All submissions must include a self-addressed, stamped envelope; the publisher assumes no responsibility for unsolicited manuscripts. Periodical postage paid at Norwalk, CT and additional mailing offices. POSTMASTER, send change of address to *Asimov's Science Fiction*, 6 Prowitt Street, Norwalk, CT 06855. In Canada return to Quebecor St. Jean, 800 Blvd. Industriel, St. Jean, Quebec J3B 8G4.

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THE 2007 DELL MAGAZINES AWARD

Thirty years ago, Isaac Asimov co-founded his eponymous magazine partly so that new writers would have the same sort of venue to break into that he'd had when he sold his first story to *Amazing* at age eighteen. Fourteen years ago, my co-judge, Rick Wilber, and I founded the Dell Magazines Award for Undergraduate Excellence in Science Fiction and Fantasy Writing to honor Isaac's memory and to create an additional way to encourage young writers. This year, I traveled to Fort Lauderdale, Florida, in March, for my fourteenth Conference for the Fantastic in the Arts. There, I met a new crop of talented young writers. This year's winner, Natty Bokenkamp, is a senior at Stanford University majoring in physics with an emphasis on astrophysical studies. In addition to placing first in the contest with his perceptive story, "The Uncanny Valley," and picking up a check for five hundred dollars from Dell Magazines, Natty was also named second runner-up for his story, "Cargo." "The Uncanny Valley" will appear on our website next year.

As has often been the case with these awards, we had another double winner this year. Our first runner-up, Rahul Kanakia, was also our third runner-up. His respective stories were "Money Is the Best Damn Thing There Is" and "The Silent Horde." Although Rahul is a junior at Stanford majoring in economics, he and Natty met for the

first time at the Florida conference. Both, however, had previously met our 2005 and 2006 winner, and Stanford alum, Anthony Ha.

This year, only one of our three honorable mentions could attend the conference. Stephen Leech, a senior in mass communications who now plans to teach high-school English, received a certificate for his story "The Whale-Zeppelin Canard." He is the first student from the University of South Florida to place in the awards. The Dell Magazines Award, which is co-sponsored by the International Association for the Fantastic in the Arts Award, is also supported by the School of Mass Communications, University of South Florida, Tampa, Florida. Honorable mention also went to Seth Dickinson of the University of Chicago for his short story, "Claymore Three-Zulu," and to two-time first runner up (in 2006 and 2007), Eliza Blair of Swarthmore College for her story "Tangle."

Last year's award-winning story, "Shift," by Meghan Sinoff, is now up at our website. Don't miss this moving tale.

Next year, the convention moves to Orlando, Florida, so this was my last chance to spend my afternoons by the Fort Lauderdale pool doing story conferences with the students. Some time at this last visit to the capital of Spring Break was also spent meeting with well-known authors. I attended guest of honor Geoff Ryman's excellent reading; I dined with James Patrick Kelly,

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Photo credit: Liza Groen Trombi

Left to right: Rahul Kanakia, Rick Wilber, Natty Bokenkamp, Sheila Williams, and Stephen Leech.

Ted Chiang, John Kessel, M. Rickert, and Patrick O'Leary; and, on Saturday afternoon, Tachyon publisher Jacob Wiesman took me on what may have been my last trip to Jaxson's Ice Cream Parlor. Later that day, I had the delightful opportunity to sit with Joe and Gay Haldeman during the awards' banquet and ceremony. I hope the move will continue to give me opportunities to hang out with convention regulars like Brian W. Aldiss, Peter Straub and his lovely wife, Susan, John Clute, Andy Duncan, Elizabeth Hand, Mary Turzillo, and Kathleen Ann Goonan.

We are actively looking for next year's winner. The deadline for submissions is Monday, January 2, 2008. All full-time undergraduate students at any accredited university or college are eligible. Stories must be in English, and should run from 1,000 to 10,000 words. No submission can be returned, and all stories must be previously unpublished and unsold. There is a \$10 entry fee, with up to three stories accepted for each fee paid. A special

flat fee of \$25 is available for an entire classroom of writers. Instructors should send all the submissions in one or more clearly labeled envelopes with a check or money order. Checks should be made out to the Dell Magazines Award. There is no limit to the number of submissions from each writer. Each submission must include the writer's name, address, phone number, and college or university on the cover sheet, but please do not put your name on the actual story.

Before entering the contest, contact Rick Wilber for more information, rules, and manuscript guidelines. He can be reached care of:

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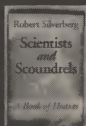
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DECODING CUNEIFORM

Last month I wrote of dipping into *Ancient Records of Assyria and Babylonia*, a fine old volume of translations from Mesopotamian cuneiform inscriptions, from which it is easy to see that the part of the world now known as Iraq was, even in antiquity, a bloody battleground ruled by ferocious tyrants. I quoted from the boastful inscriptions of such ancient Assyrian kings as Sennacherib and Asurbanipal, of which this is a typical sample: "For two days, from before sunrise, I thundered against them like Adad, the god of the storm, and I rained down flame upon them. . . . A pillar of living men and of heads I built in front of their city gate, seven hundred men I impaled on stakes in front of their city gate. The city I destroyed, I devastated, I turned it into mounds and ruins; their young men I burned in the flames." And I noted that what I found most interesting about these horrifying testaments of atrocity wasn't their ghastliness but the mere fact that we are capable of reading them at all, written as they were on tablets of clay in what is now a lost language and a strange wedge-shaped script. So let's look now at how we came to understand the Assyrian and Babylonian inscriptions in the first place.

European scholars had been puzzling over this ancient writing—"cuneiform," it was called, from the Latin word meaning "wedge"—since the seventeenth century. Three different kinds of cuneiform inscrip-

tions had been discovered at the ancient Persian capital of Persepolis. By 1778 one of them had been shown to be a forty-two-character alphabetic script. The other two were vastly more complex. And no one knew which language these characters represented, although it was reasonable to think that one or perhaps all three scripts were in the ancient Persian tongue.

To decipher an unknown script, there has to be some point of contact with the known. If both the characters and the language they represent are enigmas, it becomes impossible to get very far with a decipherment. François Champolion was able to decipher hieroglyphics because he had the use of the Rosetta Stone, which provided a long Egyptian text in two kinds of Egyptian script, plus a translation into Greek. But no Rosetta Stone for the cuneiform script was available.

One big break came toward the end of the eighteenth century as philologists began to study existing texts of an archaic form of the Persian language that had been written using a decipherable alphabet called Pehlevi. One of them guessed that the simplest of the Persepolis inscriptions, the so-called Class I ones, were Old Persian texts written in the wedge-shaped cuneiform letters. A German high-school teacher named Georg Friedrich Grotefend, whose hobby was solving puzzles, went looking for some repetitive phrase in the Persepolis inscriptions that might give him a

clue to the meaning of a few of the wedge-shaped symbols.

It was already known that Persian official inscriptions almost always began with, and constantly reiterated, a formula that went, "So-and-So, Great King, King of Kings, King of This and That, Son of So-and-So, Great King, King of Kings." Grotefend first identified the eight most frequent of the forty-two Class I characters and decided that these probably stood for vowels. Then he went looking for the words of his royal formula, and the names of the kings.

Quickly he found clusters of repeated words, the most frequent of which was a seven-letter group that he suspected meant "king." In Old Persian that word was "khsheihoh," and by lining up the characters he arrived at guesses for seven letters. Then, finding what seemed to be a royal name at the proper place in the formula, he matched the letters he had already identified against the name of a known king—Xerxes, "Khshershe" in Persian—and then tested his growing list of letters against the name of Xerxes' father, Darius—"Darheush." Bit by bit, by trial and error, he was able to claim identification of twenty-nine of the forty-two Class I characters by 1803. Although it turned out that he was wrong about some of these, he had provided entry into the mysteries of Class I cuneiform.

But Class I was still a long way from a complete decipherment and the Class II and III inscriptions were still total mysteries when, in 1835, a swashbuckling English scholar-adventurer named Henry Creswicke Rawlinson entered the picture. Rawlinson, a lieutenant in the service of the British East India Company, had been stationed in

various Asian posts—first in India, then in Persia—since the age of seventeen. He had a natural knack for languages and quickly mastered several Indian tongues, Arabic, and Persian. And, like Grotefend, he was inclined toward puzzle-solving as an amusement. Knowing little of Grotefend's work, he attempted a decipherment of Class I using the same method, and worked out thirteen letters on his own. When the East India Company transferred him to its Persian base at Kerman-shah, he swiftly learned that a lengthy cuneiform inscription in all three scripts was to be found carved on the Behistun Rock, a seventeen-hundred-foot-high cliff twenty miles from town, and rode out to take a look.

But the inscription was all but inaccessible. The ancient Persian rock-carvers had removed the steps leading up to it after they were finished, so later vandals could not deface the words. Rawlinson, a considerable athlete, scrambled up the bare, slippery face of the rock without the aid of ropes or ladders until he reached a ledge, two feet in breadth at its widest point, where he could stand and copy part of the inscription.

The Behistun text was studded with names out of Persian history—King Darius and his whole ancestral line—and Rawlinson, using inspired guesswork, his linguistic skills, and his knowledge of history, was able to match names to cuneiform characters and work out a nearly complete translation by January 1838, correcting many of Grotefend's errors and demonstrating certain knowledge of eighteen of the forty-two letters. In the months that followed he was able to decipher and translate some two

hundred lines of the Class I Behistun inscription.

Class II and Class III remained unknown, though, and Rawlinson had only fragmentary copies of those texts, which he believed were the Class I inscription written in the scripts of two other languages, one of them very likely Babylonian or Assyrian. In 1844 he returned to Behistun, erected a wooden folding ladder on a narrow ledge three hundred feet above the ground, stood on its topmost rung, and, bracing himself against the rock with his left arm and holding his notebook in his left hand, copied the inscription with his right hand. "The interest of the occupation," he wrote, "entirely did away with any sense of danger."

Now he had all of Class I and most of the Class II inscription. In 1847 he returned equipped with ladders, planks, ropes, nails, hammers, and pegs, and hired a Kurdish boy to scramble out over the abyss on a scaffold to make paper casts, "squeezes," of the almost inaccessible Class III. Equipped with the full texts, Rawlinson set about to match his Persian Class I text against the far more intricate Class III, which had hundreds of characters instead of only forty-two, in the hope of solving the riddle of Babylonian cuneiform. In England, meanwhile, a clergyman named Edward Hincks started work on the same difficult task.

Hincks showed that it was wrong to talk of a Babylonian "alphabet." More than five hundred different Class III characters were known, and no language could have that many basic sounds. Hincks guessed that some of the symbols stood for individual syllables, and others for entire words. Comparing Class I's

royal formulas with their likely Class III counterparts, he showed that the seven signs of Xerxes' name—KH-SH-Y-A-R-SH-A in Hincks' reading—lined up with Babylonian signs that could have been pronounced KHI-SHI-I-AR-SHI-I. By 1847 he had deciphered twenty-one syllables and had identified the ideographic symbols that stood for such words as "and," "son," "great," "house," and "god."

Rawlinson, at the same time, was finding syllables—*ka, ki, ku, ak, ik, uk*, etc.—and deciphering certain words, helped by his familiarity with Hebrew and Arabic, languages closely related to the one that the Babylonians and Assyrians had spoken. The word for "dog," *keleb* in Hebrew and *kalbu* in Arabic, turned out to be *kalbu* in Babylonian-Assyrian. "To burn" was *saraf* in Hebrew and *sarapu* in Babylonian-Assyrian. So it went, until by 1850 he could claim to know the meaning of 150 Class III characters and two hundred Babylonian-Assyrian words. Each solution, though, brought with it a host of new complications. The Mesopotamian civilizations had lasted thousands of years, and over that time Mesopotamian scribes had invented all manner of new ways of transforming words into wedge-shaped symbols, so that by the time the Behistun inscription was carved the system in use was full of bewildering overlaps of meaning and linguistic shortcuts. Rawlinson devoted years to untangling these puzzles, while Hincks carried on parallel research of equal value. In 1851 Rawlinson made public a translation of a text carved on a clay cylinder that confirmed an event described in the Bible, the defeat of King Hezekiah of Judah

by the armies of the Assyrian king Sennacherib, which I quoted in last month's column. ("As for Hezekiah, the Jew, who had not submitted to my yoke, forty-six of his strong, walled cities and the cities of their environs, which were numberless, I besieged, I captured, as booty I counted them.") Its announcement caused a mighty stir in England.

Excavation of the ruined Assyrian palaces at Nineveh in what is now northern Iraq produced whole libraries of clay tablets bearing cuneiform inscriptions, among them, of all useful things, what Rawlinson called "a perfect encyclopedia of Assyrian science," a cuneiform "book" describing "the system of Assyrian writing, the distinction between phonetic and ideographic signs, the grammar of the language, explanation of technical terms. . . ." These royal libraries also contained dictionaries of the Assyrian language. What he already knew of the script allowed him to penetrate these tablets and greatly extend his knowledge. His rival Hincks kept at it also, and a Franco-German scholar named Jules Oppert entered the field as well. These three, working independently, steadily refined the understanding of the cuneiform inscriptions by mastering, step by step, the bizarre tangle of complexities that governed the Mesopotamian system of writing. The climax came in 1857 when the Royal Asiatic Society of England

sponsored an event in which Rawlinson, Hincks, Oppert, and an English scholar named William Fox Talbot were each given copies of an untranslated Class III text and told to translate it independently. When the results came in, Rawlinson's and Hincks' versions were virtually identical, Oppert's quite similar, and Fox Talbot's, though sometimes vague and incorrect, fairly close in a general way. And that is how we came to unlock the secrets of Mesopotamian cuneiform. (The Class II, which turned out to be in a language called Elamitic, was not deciphered until 1879. Sumerian, yet another cuneiform script and the ancestor of all the others, was decoded around the same time through the use of Assyrian-Sumerian dictionaries.)

It will not, of course, be so easy to decipher the writings we find on alien worlds, when and if we discover such things. We won't be provided with convenient multilingual inscriptions that can partly be understood, as were Champollion in Egypt and Rawlinson in Persia. On the other hand, perhaps future advances in computer science will sweep away such obstacles. Until then, though, the nineteenth-century decipherment of Mesopotamian cuneiform must stand as one of the most miraculous of linguistic achievements, opening, as it does, a doorway into civilizations thought forever lost. ○

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HAPPY RED PLANET

explore

It's hard for this science fiction reader and science fan to say exactly which has been more exciting: the spate of stirring Mars novels published over the last fifteen years or the astonishing achievements in Mars exploration that continues even as you read this. What is interesting is that some of the work I associate with the renaissance of Mars fiction—say, for example **Kim Stanley Robinson's** <http://en.wikipedia.org/wiki/Kim_St Stanley_Robinson> masterful Mars trilogy—predate the avalanche of data that has most recently poured down on us from the sky. I'm thinking that when the Mars geeks out there digest the research streaming in from all the robots we have swarming the Red Planet, I'll have to stretch my Mars bookshelf again.

Over the years, followers of the Mars explorations have had their ups and downs. We remember the how the **Mariner** <<http://sse.jpl.nasa.gov/missions/profile.cfm?Sort=Alpha&Letter=M&Alias=Mariner%2004>> mission of 1964 crushed Percival Lowell's **dream** <<http://www.wanderer.org/references/lowell/Mars>> of a fading Martian civilization huddled around its grand canals. We who read this magazine believe in the scientific method and know that we must abandon a theo-

ry when it is discredited, even when it is so very pleasing. There was no denying the thrill of the **Viking** <http://www.nasa.gov/mission_pages/viking> mission, which, beginning in 1976, showed us a Mars we could almost reach out and touch. I still own a book of 3D panoramic photographs from Viking, and I still have those awkward cardboard glasses. Then came a long season of neglect and frustration. In 1988, two Russian **Phobos** <<http://www.iki.rssi.ru/IPL/phobos.html>> missions failed and in 1992 we lost contact with NASA's **Observer** <http://en.wikipedia.org/wiki/Mars_Observer> probe three days before orbital insertion. In fact, nearly two-thirds of the spacecraft humans have dispatched to Mars have failed, many before ever reaching their destination. This is not all that surprising considering the challenges involved in flinging robots some seventy million kilometers through space. The instructions we send out take between ten and twenty minutes to get to them, depending on the positions of Mars and Earth. Talking to Mars means putting up with some excruciatingly long and drawn-out conversations.

lots of bots

As I write this, there is a veritable crowd of probes poking and

prodding our sister planet: Five different missions are beaming data back to earth.

Perhaps the most celebrated is the **Mars Exploration Rover Mission** <<http://marsrovers.jpl.nasa.gov/home/index.html>>, which is now in its fourth year on Mars. It has been one of our most spectacular successes in space. You will recall that when the twin Rovers, *Spirit* and *Opportunity*, landed on Mars in January 2004 NASA's scientists and engineers were hoping that their mission would last at least ninety sols, or Martian days. The **Martian day** <<http://www.giss.nasa.gov/tools/mars24>> is 24.66 hours long. The rovers have now exceeded what NASA engineers jokingly refer to as their "warranty" by more than twelve times. *Spirit* has driven seven kilometers across the Martian surface and *Opportunity* has logged ten kilometers. Together they have taken more than one hundred and seventy thousand photographs.

Mars Global Surveyor <<http://mars.jpl.nasa.gov/mgs>> is the oldest of the robots studying Mars, arriving in 1997. It circles the planet in a polar orbit every two hours, four hundred kilometers above the surface. Its longevity has led to the discovery of strong evidence that water still flows from time to time on Mars. Comparison of photographs of a gully taken in 2001 and again in 2005, show a new deposit of materials that appears to have been carried downslope by a transient flood.

Mars Odyssey, <<http://mars.jpl.nasa.gov/odyssey/index.html>> was designed to map the chemical and mineral composition of the Martian surface. It has led to the discovery of vast amounts of water

ice just beneath the surface at the polar caps. *Odyssey* has also mapped the radiation environment on Mars and has served as a relay for *Spirit* and *Opportunity*, sending 85 percent of the data from the rovers to Earth.

Mars Express <http://www.esa.int/SPECIALS/Mars_Express/index.html> is the European Space Agency's Mars probe. In addition to providing high-resolution imaging and mineralogical mapping of the surface, it is also investigating the atmosphere of Mars and is making the first radar sounding measurements of the ionosphere and subsurface structure of the planet. As planned, the Mars Express mission was also to have included a lander call the *Beagle 2*. Alas, the *Beagle* never called home after landing on Mars and was declared lost. Images taken by Mars Global Surveyor suggest that the lander came down hard in a crater on Isidis Planitia.

Mars Reconnaissance Orbiter <http://www.nasa.gov/mission_pages/MRO/main/index.html> or try <<http://marsprogram.jpl.nasa.gov/mro>> is the newcomer on the Mars block, arriving in March of 2006. Its task is to uncover the history of water on Mars, using an array of instruments: a high-resolution camera, imaging spectrometer, context camera, ground-penetrating radar, atmospheric sounder, global color camera, radio and accelerometers.

We pause here for the briefest of rants. Of course, the NASA websites offer some of the best information about Mars and indeed, about all of space. We could hardly do without them. And most of the individual sites are well designed. The problem, however, is that

sometimes the NASA sites in the aggregate don't play all that well together. I may be reading too much into this, but from this vantage, it looks like there is some serious turf warfare going on. How come competing "official" sites for the Mars Reconnaissance Orbiter have similar but different content? Come on, Mars heads! The internet is complicated enough!

results

The most important questions about Mars have always been, can it sustain life? And did it ever? Although the data coming to us from our robots on the red planet has expanded our understanding of conditions there, the answer is still: we don't know. It seems almost certain that if there is life on Mars now, it can't exist on the surface. A study by L.R. Dartnell, L. Desorgher, J.M. Ward, and A.J. Coates published in the journal **Geophysical Research Letters** <<http://www.agu.org/journals/scripts/highlight.php?pid=2006GL027494>> in January 2007 maintains that any living organism within the top few meters of the Martian surface would be killed by lethal doses of cosmic radiation. Life is far too fragile to survive without an atmosphere or a global magnetic field to protect it from cosmic radiation. If life exists, we'll have to dig for it. For example, it's possible that there could be life in the frozen sea recently discovered on Elysium Plantia, as long as it is about seven and a half meters below the icy surface. Or else it might be tucked into some of the younger craters or in new gullies recently discovered by the Mars Global Sur-

veyor. Unfortunately, none of the current or planned missions have the ability to root out life on Mars. In 2013 the European Space Agency is planning to launch **ExoMars** <http://www.esa.int/SPECIALS/Aurora/SEM1NVZKQAD_0.html>, a rover with the capability of drilling about two meters deep for samples. But that is still in the cosmic radiation kill zone. According to Dartnell and his associates, it would need to drill three meters to have any chance of finding life.

Aaargh!

One place you can begin to sift through the latest research on Mars is **The Mars Journal** <<http://marsjournal.org>> a new, peer-reviewed online open access scholarly journal funded by NASA. The papers are in three general categories: Mars science, Mars technology and Mars policy.

Not quite as esoteric as The Mars Journal, **Google Mars** <<http://www.google.com/mars>> is simply one of the most entertaining Mars sites on the web. While not quite as jaw-droppingly amazing as the **Google Earth** <<http://earth.google.com>> client, it is nevertheless a must click site for homesick Martians. Created in collaboration with researchers at **Arizona State University** <<http://themis.asu.edu/projects>> working on the Mars Odyssey mission, it is as close as any of us are likely to get to touring Mars. By linking to features like mountains and craters and plains and canyons, the site lets you make a quick stop at all those exotic places you've read about in your favorite science fiction stories about Mars. More important, it gives you the chance to survey their relationship to Martian geography. How long does it take to drive

from the eastern slope of Olympus Mons to the northern rim of the Candor Chasma? Depends on your vehicle, but definitely use the bathroom before you start out.

If you believe, as many Mars aficionados do, that it is the destiny of humankind to colonize Mars, then you owe to yourself to stop by the site of **The Mars Society** <mars.society.org/portal> and maybe pony up the fifty dollars they want for membership. Your money will be put to good use reaching out to instill the public with a vision of pioneering Mars and lobbying governments to fund exploration and conducting private Mars exploration. The tenth annual International Mars Society Convention will be held 30 Aug–2 Sep at the University of California, Los Angeles.

exit

While I grew up on the Mars of Bradbury and Burroughs, the data from Mariner probe and the Viking lander made their red planets seem as quaint as Oz. The fact is, I lost interest in Mars during the long drought in Mars exploration in the eighties. It wasn't until my friend Kim Stanley Robinson set off on an almost decade long journey to the Mars of his mind that my own interest in the sister planet was rekindled. Stan's books were acclaimed by readers and writers alike: *Red Mars* won the Nebula, while *Green Mars* and

Blue Mars each won Hugos. The original Mars novella was the cover story of the September 1985 *Asimov's*. But you know all this. You would have had to have been living on . . . well, *Mars* to have missed all the hoopla over these great books. There are a couple of interesting fan sites for Stan and his Mars trilogy. **The Red, Green & Blue MarsSite** <<http://www.xs4all.nl/~fwb/rgbmars.html>> features a map of Mars as terraformed in the year 2219, a few years after the end of the trilogy. **The Kim Stanley Robinson Encyclopedia** <http://ksrwiki.philosophicalzombie.net/wiki/The_Kim_Stanley_Robinson_Encyclopedia> is a wiki based encyclopedia based on Stan's works. Stop by and put your two cents worth in!

But it would be a disservice to the genre to imagine that Stan's trilogy is the final word in Mars fiction. Check out Frederick Pohl's *Man Plus*, Geoffrey A. Landis's *Mars Crossing*, Gregory Benford's *The Martian Race*, Greg Bear's *Moving Mars*, Alexander Jablokov's *River of Dust*, or Paul J. McAuley's *Red Dust*. Want more Mars? While it has not been updated for a while, **Steampunk, the New Speculative Fiction Clearing House** <<http://www.steampunk.com/sfch/bibliographies/mars.html>> has a decent **Mars Bibliography** <<http://www.steampunk.com/sfch/bibliographies/mars.html>>.

Or better yet, write your own. There's always room on my shelf for another Mars book! ○



HORMIGA CANYON

Rudy Rucker

&

Bruce Sterling

"Hormiga Canyon," Rudy Rucker and Bruce Sterling's exciting new tale of giant ants and woolly mammoths residing in Southern California is the authors' third collaboration for *Asimov's*. Each has had numerous solo appearances in the magazine as well. Two sections of Rudy Rucker's new cyberpunk novel, *Postsingular* (out from Tor this fall), first appeared in *Asimov's*, as "Chu and the Nants" (June 2006) and "Postsingular" (September 2006). Rudy is working on a sequel (currently titled *Hylozoic*) and plans to extend the series to a trilogy. Other recent publications are a story anthology, *Mad Professor*, and a second edition of *The Hollow Earth*, a historical SF novel starring Edgar Allan Poe. Rucker spends an inordinate amount of time writing and photographing for his blog, www.rudyrucker.com/blog. Bruce Sterling, who gives blogs ten years to live, has won Hugo Awards for two novelettes, "Bicycle Repairman" (October/November 1996) and "Taklamakan" (October/November 1998), that were first published in *Asimov's*. Eight of his stories from *Asimov's* will soon appear in

Ascendancies: The Best of Bruce Sterling. His latest book, *Shaping Things*, is a manifesto on post-industrial design coming out from MIT Press.

Part 1

Stefan Oertel pulled a long strand of salami rind from his teeth. He stared deep into wonderland.

Look at that program go! Flexible vectors swarming in ten-dimensional hyperspace! String theory simulation! Under those colored gouts of special effects, this, at last, was real science!

Stefan munched more of his sandwich and plucked up an old cell phone, one of the ten thousand such units that he'd assembled into a home supercomputer. "Twine dimension seven!" he mumbled around the lunchmeat. "Loop dimension eight!"

The screen continued its eye-warping pastel shapes. Stefan's ultracuster of hacked cell phones was searching Calabi-Yau string theory geometries. The tangling cosmic strings wove gorgeous, abrupt Necker-cube reversals and inversions. His program's output was visually brilliant. And, thus far, useless to anybody. But maybe his latest settings were precisely the right ones and the One True String Theory was about to be unveiled—

"Loop dimension eight," he repeated.

Unfortunately his system seemed to be ignoring his orders. There might be something wrong with the particular phone he was holding—these phones were, after all, junkers that Stefan's pal Jayson Rubio had skimmed from the vast garbage dumps of Los Angeles. Jayson was a junk-hound of the first order.

Ten thousand networked cell phones had given Stefan serious, number-crunching heavy muscle. He needed them to search the staggeringly large state space of all possible string theories. The powerful Unix and RAM chips inside the phones were in constant wireless communication with each other. He kept their ten thousand batteries charged with induction magnets. The whole sprawling shebang was nested in sets of brightly colored plastic laundry baskets. Stefan dug the eco-fresh beauty of this abracadabra: he'd transformed a waste-disposal mess into a post-Einsteinian theory-incubator.

Stefan had earned his programming skills the hard way: years of labor in the machine-buzzing dungeons of Hollywood. And he'd paid a price: alienated parents in distant Topeka, no wife, no kids, and his best coder pals were just email addresses. Furthermore, typing all that computer graphics code had afflicted him with a burning case of carpal tunnel syndrome, which was why he preferred yelling his line-commands into phones. Cell phones had kick-ass voice-recognition capabilities.

Stefan dipped into a brimming pink laundry basket and snagged a fresher phone, an early-nineties model with a flapping, half-broken jaw.

"Greetings, wizard!" the phone chirped, showing that it was good to go.

"Twine dimension seven, dammit! Loop dimension eight."

The system was still ignoring him. Now Stefan was worried. Was the TV's wireless chip down? That shouldn't happen. The giant digital flat-screen was new. And, yes, the phones were old junk, but with so many of them in his ultracuster it didn't matter if a few dozen went dead.

He tried another phone and another. Crisis was at hand.

The monster screen flickered and skewed. To his deep horror, the speakers emitted a poisoned death-rattle, prolonged and sizzling and terrible, like the hissing of the Wicked Witch of the West as she dissolved in a puddle of stage-magic.

The flat screen went black. Worse yet, the TV began to smell, a pricey, burnt-meat, molten-plastic odor that any programmer knew as bad juju. Stefan bolted from his armchair and knelt to peer through the ventilation slots.

And there he saw—oh please no—the ants. Ants had always infested Stefan's rental house. Whenever the local droughts got bad, the ants arrived in hordes, trooping out of the thick Mulholland brush, waving their feelers for water. Stefan's decaying cottage had leaky old plumbing. His home was an ant oasis.

He'd never seen the ants in such numbers. Perhaps the frenzied wireless signals from his massive mounds of cell phones had upset them somehow? There were thousands of ants inside his TV, a dark stream of them wending through the overheated circuit cards like the winding Los Angeles River in its man-made canyons of graffiti-bombed cement. The ants were eating the resin off the cards; they were gorging themselves on his TV's guts like six-legged Cub Scouts eating molten s'mores.

Stefan groaned and collapsed back into his overstuffed leather armchair. The gorgeous TV was a write-off, but all was not yet lost. The latest state of his system was still stored in his network of cell phones.

He reached for his sandwich, wincing at a stab of pain in his wrist.

The sandwich was boiling with ants. And then he felt insectile tickling at his neck. He jumped to his feet, banged open the door of his leaky bathroom, and hastily fetched up an abandoned comb. He managed to tease three jolly ants from his strawy hair, which was dyed in a fading splendor of day-glo orange and traffic-cone red.

Before he'd moved into this old house, Stefan hadn't realized that most everybody in L.A. had an ant story to tell. Stefan had the ants pretty badly, but nobody sympathized with him. Whenever he reached out to others with his private burden of tales, they would snidely one-up him with amazing ant-gripes all their own: ants that ate dog food, ants that ate dogs, ants that carried off children.

Compared to the heroic ant woes of other Angelenos, Stefan's ant problems seemed mild and low-key. His ants were waxy, rubbery-looking little critters, conspicuously multi-ethnic in fine L.A. style, of every shape and every shade of black, brown, red, and yellow. Stefan had them figured for a multi-caste sugar-ant species. They emerged from the tiniest possible cracks, and they adored sweet, sticky stuff.

Stefan bent over the rusty sink and splashed cold water on his un-

shaven face. He'd done FX for fantasy movies that had won Oscars and enchanted millions of people on six continents. But now, here he stood: wrists wrecked, vermin-infested, no job, no girlfriend, neck-deep in code for a ten-dimensional string-theory simulation with no commercial potential.

Kind of punk and cool, in a way. It sure beat commuting on the hellish L.A. freeways. He was free of servitude. And he definitely had a strong feeling that the very last tweak he'd suggested for his Calabi-Yau search program was the big winner.

Just three months ago, he'd been ignoring his growing wrist pains while writing commercial FX code for Square Root of Not. The outfit was a cutting-edge Venice Beach graphics shop that crafted custom virtual-physics algorithms for movies and the gaming trade.

Of course, Stefan's true interest, dating way back to college, had always been physics, in particular the Holy Grail of finding the correct version of string theory. Pursuing the awesome fantasy of supersymmetric quantum string manifolds felt vastly finer and nobler than crassly tweaking toy worlds. The Hollywood FX work paid a lot, yes, but it made Stefan a beautician for robots, laboring to give animated characters better hair, shinier teeth, and bouncier boobs. String theorists, on the other hand, were the masters of a conceptual universe.

Though the pace of work had nearly killed him, Stefan had had a good run at Square Root of Not. Their four-person shop had the best fire-and-algebra in Los Angeles, seriously freaky tech chops that lay far beyond the ken of Disney-Pixar and Time-Warner. The Square Rooters' primary client, the anchor-store in the mall of their dreams, had been Eyes Only, a big post-production lab on the Strip.

But Eyes Only had blundered into a legal tar pit. All too typical: the suits always imagined it was cheaper to litigate than to innovate. Disney's Giant Mouse was crushing the copyrighted landscape with the tread of a mastodon.

Stefan hadn't followed the sorry details; the darkside hacking conducted in Hollywood courtrooms wasn't his idea of entertainment. Bottom line: rather than watching their lives tick away in court, the Square Rooters had taken the offered settlement, and had divvied up cash that would otherwise go to lawyers.

Their pay-off had been less than expected, but all four Square Rooters had been worn down by the grueling crunch cycles anyway. Liberated and well-heeled, each Square Root partner had some special spiritual bliss to follow. Lead programmer Marc Geary was puffing soufflés at a chef school in Santa Monica. Speaker-to-lawyers Emily Yu was about to sail to Tahiti on an old yacht she'd bought off Craig's List. Handyman Jayson Rubio was roaring around the endless loops of L.A.'s freeways on a vintage red Indian Chief motorcycle. As for Stefan—Stefan was sinking his cash into his living expenses and his home-made ultracenter supercomputer. Finally, freedom and joy. Elite string-theory instead of phony Hollywood rubber physics.

Some days the physics work got Stefan so excited that he could think of nothing else. Just yesterday, when he'd been feeling especially manic

about his code, doll-faced Emily Yu had phoned him with a shy offer to come along on her South Seas adventure. Idiotically, Stefan had blown her off. He'd overlooked a golden chance at romance. Instead of hooking up, he'd geeked out.

Today he was nagged by the sense that he should call Emily back. Emily was smart and decent, just his type. But—the thing was—he couldn't possibly think about Emily without also thinking about work. Those years of servitude were something he wanted to forget. In any case, right this minute he was for sure too busy to call Emily, what with all these friggin' ants.

Stefan glared at his unshaven clown-haired visage in the mirror. He knew in his heart that he was being stupid. How many more women were likely to ask for face-time with him? He'd never get another such offer from kind-hearted Emily Yu. There were a million pretty women in L.A., but never a lot of Emilys. Call her now, Stefan, call her. Do it, You have ten thousand phones in here. Call.

All right, in a minute, but first he'd call his landlord about the ants.

Back in his living room, long tendrils of ants were spreading out from the TV. Amazingly tiny ants: they looked no bigger than pixels, and their jagged ant-trails were as thin as hairline cracks. They were heading for the laundry baskets.

"Not my cell phones, you little bastards," cried Stefan, hauling his baskets outside to the dilapidated porch.

He found a phone that seemed to hold a charge.

"Call Mr. Noor," Stefan instructed. He'd cloned a single phone account across all ten thousand of his phones.

He heard ringing, and then his landlord's dry, emotionless voice.

"This is Stefan Oertel, Mr. Noor. From the cottage in the back of your estate? I'm being invaded by ants. I need an exterminator right now."

"Hyperio," said Mr. Noor. "You tell Hyperio, he fixes that." This was Mr. Noor's usual response. Unfortunately Mr. Noor's handyman Hyperio was some kind of illegal, who appeared maybe once a month. Stefan had seen Hyperio just the other day, trimming the bushes and hand-rolling cigarettes. This meant that the ants would rampage unchallenged for weeks.

"Does Hyperio have a telephone?" asked Stefan. "Does he even have a last name?"

"Use poison spray," said Mr. Noor shortly. "I'm very busy now." Mr. Noor was always on the phone to rich friends in the distant Middle East. End of call.

Stefan snorted and squared his shoulders. The ant-war was up to him.

He found his cyber-tool kit and extracted the coil of a flexible flashlight. He poked his instrument through the slots in the back of his TV. The ants had settled right in there, ambitious and adaptable, like childless lawyers lofting-out a downtown high-rise. In the sharp-edged shadows lurked a sugar ant as big as a cockroach. The huge ant was tugging at something. A curly bit of wire, maybe. For a crazy, impossible instant the ant looked as big as a hamster.

Stefan rocked back on his heels. These ants were blowing his mind;

they were dancing on the surface of his brain. He was losing it. It was very bad for him to be deprived of a computer. He needed some help right away.

"Call Jayson," he told his phone.

Although Jayson Rubio sometimes worked Stefan's nerves, the two of them had a true and lasting bond. During each year they'd spent at Square Root of Not, they'd ventured to Burning Man together, displaying their special-FX wizardry to the festival crowds in the desert.

Both of them had all-devouring hobbies: Stefan's was string theory; Jayson's was memorabilia. Since leaving the FX company, Jayson had started his own little online business, marketing Renaissance-Faire-type costume gear that he made. Stefan maintained Jayson's website.

Jayson was old-school, very analog. At Square Root of Not, he'd been the go-to guy for everything physical: stringing power cables, putting up drywall, sanding the floors, fixing the plumbing. As a fix-it wizard, Jayson was a human tornado. He always carried a sheathed multitool on his belt: knives, pliers, wrench, saw, scissors, cutters, strippers, punchers, poker, rippers, pounders, and more. Jayson never lacked for options.

The phone was successfully ringing. Now that Stefan was in a jam, a jam full of sugar-ants, good old Jayson would pitch in.

"Stefan!" shouted Jayson, answering. "Call me back later."

"No no no, listen to me," Stefan babbled. "Ants are eating my hardware!"

Someone else was angrily yelling at Jayson in the background. Jayson had a fetish about holding his cell phone at arm's length, so that the powerful microwave phone-rays wouldn't foment a brain tumor. Whenever you called Jayson Rubio, you weren't calling an individual, you were calling an environment.

Jayson's current environment featured an echoing garage roar of biker engines and snarling heavy-metal music. "What? Not one more dime!" Jayson was barking. "Your ad said 'runs great,' it didn't say 'skips gears!' Are you waving that tire-iron at me, you friggin' grease monkey? What? Sure, go ahead, call the cops, Lester! I love the L.A. cops!"

Stefan heard more angry demands, and finally the roaring of a motorcycle. The engine noise rose to a crescendo, then it smoothed down. "Stefan, dog," said Jayson at last, wind whipping past his phone. "You still there?"

Stefan explained about the ants.

"Ant-man on the way!" Jayson soothed over the ragged pounding of his motorbike. "Don't even think about poison bug bombs! Bad chemical karma is never the path."

Stefan hung up. His mood had brightened. What the hell, he would fix his system somehow. He'd buy a new TV. The basic program was still in the cell-phone memory chips, also his very last tweak: twine dimension seven, loop dimension eight. For sure that had been the key to the One True String Theory. The One True String Theory was worth every sacrifice he had ever made. Cosmic strings were the key to an endless free source of non-polluting energy. His noble work would be a boon to all mankind.

Stefan wandered outside. It was another ruthlessly sunny June day, the sky blank and blue. The dry hills around Mr. Noor's estate were yellow, with scrubby olive-green oak and laurel trees. Stefan felt glad to be out of the house and away from his crippled hardware. Why did he labor indoors when he lived in California? That was crazy. Comprehending nature was, after all, the end goal of physics. Why not skip the middleman? Why not go out in nature and comprehend it in the raw?

Maybe the ants were grateful to him for discovering the One True String Theory. In return, the ants had come to teach him a finer way of life. The ants were prodding him to recast his research goals. Maybe, in particular, he could search for a woman to live with? That search was well-known to be solvable in linear time.

He would phone Emily Yu before tonight. Of course he would. How hard could that be? His friend Jayson always seemed to have a partner on his arm, often boozy and tattooed, but undeniably female. All Stefan needed to do was to reach out at a human level. Here he was, unemployed yet still feverishly programming, like the cartoon coyote who skids off a cliff, spinning his legs in mid-air, until finally realizing that, *sigh*, it's time for that long tumble into the canyon.

Overhead the leaves on a eucalyptus tree shimmered in the hot breeze. Universal computation was everywhere. Behind the façades of everyday life were deep, knotted tangles of meaning. Yes, yes. . . .

Jayson's sturdy red Indian motorcycle putted up the hill and into view, all 1950s curves and streamlining, with a low-skirted rear fender. A beautiful old machine, with Jayson happy on it.

Jayson shed his dusty carapace of helmet and jacket. He wore ragged denim cargo shorts, black engineer's boots, and a black T-shirt bearing a garish cartoon image of a carnivorous Mayan god. Jayson's brawny arms had sleeve-like tribal tattoos under intricate chain mail wristbands. Jayson wove the chain-mail in his idle moments, frenetically knitting away with pliers. Jayson's freaky metal wristbands were the best-selling items on his website. They were beloved by fantasy gamers and Society for Creative Anachronism types.

Stefan offered a cheery wave and hello, but Jayson raised a hand and hauled his phone from his shorts pocket. He listened at arm's length to the tinny bleating of the speaker, lost his temper and began to rage. "Huh? You reported it stolen? So try and find me, Lester! I got no fixed address! You've got a what? Back off, man, or you're never gonna get your money!" Angrily Jayson snapped shut his phone.

"A little trouble with your hog?" said Stefan delicately.

"Aw, that Lester," said Jayson, staring uneasily at his precious red bike. "Nasty old biker, long gray ponytail down his back . . . Lester's a crook! He sold me a sick Indian, what it is. A beauty, a rare antique, a New York cop bike with all the original paint . . . but it shifts rough. On paper I still owe him . . . but if he won't fix my bike our contract is void. No way he's calling the cops."

Reassured by his own bravado, Jayson grinned and drew a crumpled paper sack from his pants pocket. "Next topic. Your ants are history. I brought ant aromatherapy."

"Didn't you used to have a big tow-trailer for your bike?" said Stefan, studying his friend. "That had all your stuff in it, didn't it?"

A pained scowl furrowed Jayson's bearded face. "Lupe says she's throwing me out. My trailer's locked in her garage in Pasadena until I pay back rent. It's always money, money, money with her. Man, I hate gated communities. Like, why put yourself into a jail?"

"You were pretty serious about Lupe. You told me she was the best woman you ever dated. You said you loved her."

Jayson winced. "Forget Lupe. Forget my stuff. The world's full of stuff. What's the difference who has what?"

"I like where your head's at," said Stefan, feeling empathy for his companion. "Material possessions are mere illusions. Everything we see here, everything we think we own, it all emerges from the knotting and un-knotting of a hexadecillion loops of cosmic string."

It was Jayson's turn to offer a pitying look. "Still at that, huh?"

"Jayse, I'm just a few ticks of the clock away from the One True String Theory. In fact I think maybe . . . I think maybe I already found it. I found the truth exactly when those ants showed up to eat my system. So if I can just publish my science findings in a reputable journal—who knows! It could lead to golf-ball-sized personal suns!"

"Yeah, bro, it's all about the universal Celtic weave," said Jayson. He brandished the chain-mail of his hand-made wristlets, beautifully patterned, with loops in four or five different sizes. Then his indulgent smile faded; he twisted his head uneasily. "Do you, um, just hear a helicopter over the valley? Let's hide my bike in your garage. Just in case Lester really did file a report. Those ghetto-birds are hell on stolen vehicles."

"Why don't you just pay the man?" asked Stefan as they wheeled the fine old machine into his tiny, cluttered garage. "This is a beautiful bike. Heavily macho."

Jayson grunted. "Thing is, I spent my Square Root of Not money on primo collectibles. Sci-fi costumes that I picked right off the studio set. They're in my trailer, locked up in Lupe's damn garage. But really, that's okay, because all I need to do is flip those costumes for a profit on my website. Then I can make good on Lupe's rent, and get at the costumes, and also pay off the motorcycle. See, it goes round and round. Loop-like." Another cloud crossed Jayson's face. "My website's still okay, right? Inside your big computer?"

"Your site is down. Like I've been telling you—the ants ate a crucial part of my system. Your website still exists." Stefan waved his hands. "It's distributed across the memory chips of ten thousand cell phones. In terms of customer service, though, your website's a lost world."

"I hate computers."

"They love you."

"I hate ants."

"That's what I want to hear," said Stefan. "Let's go get 'em, big guy." He led his friend inside.

They knelt and peered inside the TV, using the flexible light-wand.

"Hey, I've seen lots worse," grunted Jayson in typical L.A. style. "Your ants are practically too small to see!"

"They come in all sizes, man. I saw one as big as, I dunno, as big as a miniature dachshund."

"Get a grip," advised Jayson, and the irony of this insult, coming from him, cheered Stefan no end. Yes, he was having a bad ants-in-your-hair day, but compared to Jayson, he was the picture of bourgeois respectability. He had money in the bank, a roof, and a bed. For all his swagger, Jayson was practically living in a dumpster. But—Jayson didn't even care. Jayson wasn't daunted, not a bit. Stefan could learn from him.

Jayson was staring at Stefan's cracked leather armchair. "You gonna finish that sandwich? Is that baloney organic?"

"It's salami," said Stefan. "I'll get you a bottle of beer."

Jayson wolfed down the ant-teeming sandwich in three bites. "Tastes like dill pickles."

"That would be the formic acid."

Jayson chugged the whole bottle of Mexican beer and fetched himself another. He then focused his professional attention on the four little glass phials he'd brought, deftly unlimbering his multitool and twisting off the screw-tops. Jayson loved using his pliers.

"Eucalyptus, peppermint, cinnamon, and verbena," intoned Jayson. He dribbled reeking herbal essences on the floor around the television. "Organic, non-toxic, all-natural, ants hate it. This potion never fails."

The ants tasted of the droplets—and found them good. The trails on the floor thickened as ants seethed out of the TV, so many ants that the trails looked like glittering syrup.

Not wanting to admit defeat, Jayson began stomping the ants. "My essences drew 'em out of hiding. This way we can wipe them out!" One of the old pine floorboards gave a loud crack and split along its length.

"Jayson!"

"Dog, you got so many ants that they gotta be living under your house. You got some serious Los Angeles ants here, man, you got atomic mutant ants like those giant ants in *Them*. We rip up these crappy old floorboards, napalm those little suckers with flaming moth-balls, then float in some plywood and throw down a cheap carpet. Presto, problem solved."

"Save the pyro stunts for Burning Man, Jayson. You're not wrecking my vintage floor."

Jayson knelt and peered through the broken board, getting the ant's-eye view. "That's a great movie, *Them*, it's got those classic rubber-model bug effects. None of your digital crap."

"Digital is not crap," said Stefan with dignity. "Digital is everything. The world is made of ten-dimensional loops of digital cosmic string."

"Sure, sure, but *Bug's Life* and *Antz* were totally lame compared to *Them*."

"That's because they didn't use *giant* ants," said Stefan. "Certain intellectual lightweights have this wimpy notion that giant ants are physically impossible! Merely because the weight-to-strength ratio scales nonlinearly. But there's so many loopholes. Like negatively curved space, man, or higher dimensions. Lots of elbow room in hyperspace! String theory says there are six extra dimensions of spacetime too small for humans to see. The Calabi-Yau vermin dimensions."

"You really know some wack stuff, dog," said Jayson, vindictively mashing ants with his thumb. "If these ants have got their own goddamn dimensions, all the more reason to rip up this floor and pour gallons of burning gasoline into their hive."

"Their nest is *not* under my house," insisted Stefan. "There's got to be some modern cyber-method to track ants to their true lair. Like if I could laser-scan them, or Google-map them. That would rock."

"Stefan, why did you even call me if you want to talk that kind of crap? It's not like ants have anti-theft labels."

"Hey, that's it!" exclaimed Stefan. "I've got smart dust, man. I've got a whole bag of smart dust in my bedroom."

Jayson grinned loonily and made snorting noises. "Smart dust? Throw down some lines, dog!"

"I do not speak of mere drugs," said Stefan loftily, "I'm talking RFID! Radio frequency ID chips. My smart dust comes out of a lab in Berkeley. You can ping these teensy ID tags with radio, and they give off an ID number. They're computer chips, but they're so much smaller than ants that they're like ant cell phones. Smaller than that, even. Smart dust is like ant pretzel nuggets."

Stefan fetched Jayson a promotional sheet from a heap of tech-conference swag. The glossy ad showed one single ant towering over one single chip of smart dust. The chip was a knitted trackwork of logic circuits, pretty much like any normal computer chip, but the ant standing over it was an armored Godzilla with eyes like hubcaps and feelers big as sewer pipes.

"Whoah," said Jayson. "I'd love to see an ant that big." He drew out his multitool and kinked at a shiny length of his hobby wire.

Stefan rooted through his tangled electronic gear. "Here it is: just what we need. We'll mix this bag of smart dust with your super-attractive ant repellents, and all the ants will swallow that stuff whole. Luring ants with high-tech bait—that's just like when we did our art installations at Burning Man, back in the day!"

"Yep, those naked hippies were drawn to our tech wizardry like ants to sugar," Jayson concurred. "I'd always get laid right away, but you were obsessed with keeping the demo running."

"I need to change," admitted Stefan.

The ants gathered rapidly around the bait, climbing on top of each other in their eagerness to feed. Stefan squatted to stare. "Wow, we're drawing a matinee crowd!"

"Yeah, we got a big pop hit," observed Jayson. The diverse crowd of ants included little foragers, big-jawed soldiers, curvaceous nurses, boxy undertakers . . .

Stefan pointed. "That one's big as a rubber beetle! She must be a queen or something!"

"Squash her first," said Jayson, plucking a crumpled pack of cigarettes from his pants pocket.

"I'm gonna capture her! A specimen like this belongs in a science museum." Stefan hopped up and fetched nonconductive plastic tweezers from his electronics toolbox.

But when he leaned in to clutch the biggest ant with the tools of sci-

ence—whoa, the ant shrank to a pencil-dot and disappeared into the floor boards.

"Feeling very strange!" exclaimed Stefan. "Did you see?"

"These ants are shifti mofos; I don't like 'em," said Jayson, lighting his cigarette. He dialed up his lighter's flame to make a small blowtorch. "These website-eaters must have swallowed some chips by now. Tea party's over, girls."

Scorched by Jayson's lighter flame, the ants milled, panicked, and dispersed.

Stefan's smart-dust scanner was the size of a pen, with a wireless connection to his laptop. Most of the dust was still half-glued on the floor, so it was hard to find a clear signal. Stefan tapped eagerly at his laptop's keyboard, tweaking the scanner. Enthralled by discovery, he'd forgotten all about the pain in his wrists.

The smart-dust signals were vanishing through the walls of his apartment. With some bloodhound-style electronic tracking, Stefan found that the signals converged onto a winding ant highway running through his sun-baked yard.

"See, Jayson, those ants don't live anywhere near my house."

"I'll bring the gasoline," said Jayson, opening the last Mexican beer. "I saw a five gallon can in your garage by the leaf-blower."

They followed the signals up Mr. Noor's long driveway, the gas sloshing in Jayson's rusty can. The ants were moving with astounding speed, as if they'd mounted tiny broomsticks.

"I don't like leaving my bike," said Jayson. "There's no way those ants could have run this far."

"Smart dust don't lie, *compadre*."

They arrived at an overgrown pull-off near the gate; Stefan passed it every day. He'd never thought to stop there before, for the spot was bristling with angry yucca and prickly pear. The cybernetic ant trail led under a forbidding tangle of dusty cactus, disappearing into a crooked little groove, a mini-arroyo where the fault-tortured dirt of L.A. had cracked wide open.

A wind blown newspaper dangled from the spine of an ancient yucca.

Jayson plucked the paper loose. "This might be handy for tinder. . . . Hey, whoa! Look how old this thing is!"

The newspaper dated from 1942; the lead story was about the "zoot suit riots" pitting Latino teens against US sailors on liberty.

"Duck-tail haircuts," murmured Jayson, skimming the article. "I could make a historical zoot suit. This paper is great. I can sell this as memorabilia. There might be a whole trove of old paper under that cactus. Let's hold off on the flaming gasoline attack."

Stefan stared at his laptop. His smart-dusted ant signals were vanishing as fast as movie popcorn. "They're running straight into that crack in the ground. And then their signals just vanish."

"Must be some kinda sinkhole," said Jayson. He hunkered down and accurately pitched his empty beer bottle under the cactus.

The brown Mexican glass bloated like a soap bubble, shrank to the size of a pinhead and disappeared.

"Okay," said Jayson slowly. "That's pretty well torn it."

"It's . . . that's . . . wow, it's a localized domain of scale recalibration," said Stefan. "You get that kind of Calabi-Yau effect from a warping of the seventh dimension. You wait here, Jayson. I'm gonna walk right in there. I know how to handle these things."

Clutching his laptop, Stefan ventured forward. He took a step, two, three. Enormous mammoth-ear blobs of prickly pear cast a weird shade over his computer screen.

Suddenly five enormous fleshy sausages seized his chest with crushing force. He gasped and dropped his laptop. He was yanked backward with blinding speed, then somehow found himself tumbling into Jayson, sending the two of them sprawling on the dry, cracked dirt.

"You shrank, man," Jayson complained, rising and dusting his cargo shorts. "You shrank right to the size of a hobbit. You were the size of Hello friggin' Kitty."

"Where's my computer?"

"You see that little gray matchbook down there? That's your Dell, dude."

"I'm getting it." Stefan darted in, shrinking as he went. He grabbed his laptop and hurried back out.

"Brave man," said Jayson, patting Stefan's shoulder. "How about this for an idea. Instead of walking into that crack, we get my Indian and *ride* into it."

Stefan considered this. "You really want to risk your precious bike? At this point, it's all you've got left."

Jayson mulled this perhaps unkind remark, and decided to come clean. "Look, I didn't want to tell you this before, because I'd knew you'd get all uptight, but Lester hid one of those satellite locator gizmos inside my Indian's engine block. That's what he told me on the phone. So if he really filed a stolen vehicle report . . ."

A police helicopter was laboring heavily over the valley. In L.A., the cop choppers were always up there. At four AM, above a howl of sirens, you could see them scorching the dark alleys of Hollywood with massive beams of light, like premieres in reverse.

"So I say we ride my bike into this crack in the ground," continued Jayson. "And then we ride off the radio spectrum, just like the ants did. The vehicle disappears. Plus, then we've got some wheels. It's win-win."

"Brilliant," said Stefan, nodding his head. "Let's hurry."

They left the gas can where it was and ran back to the garage. Jayson kicked his reluctant hog into function. There was room to spare for Stefan behind Jayson on the Indian's enormous seat, which had been built for the generous cop-butts of a simpler era.

They roared up the driveway to the pullout and paused to top up the motorcycle's tank from the can of gas, Jayson recklessly smoking a cigarette all the while.

"I'm, uh, having a moment of hesitation," Stefan confessed when they were back on the seat. "Can two men on a motorcycle possibly fit under a cactus?" He fumbled at his laptop. "I'm thinking maybe some calculations or some Google research would be—"

The rest of his words were lost in the roar of a police helicopter sweeping low over the ridge.

Jayson torqued the throttle and did a wheelie straight toward the bristling wall of chaparral.

Part 2

With the sinister ease of fishline unsnarling, the prickly pear grew to enormous size overhead. The groove in the ground rose up on both sides like a frozen tsunami, then segued into a commodious canyon—a peaceful, timeless place with steep reddish sides and a sweet, grassy floor.

Jayson eased back on the throttle. The canyon cliffs had a certain swoony quality, like a paint-by-numbers canvas done by someone short of oils. The canyon's air was luminous, glowing from within.

Little houses dotted the bucolic valley floor, in rows and clusters. There were fields of corn, chickens in the yards, oranges, and, here and there, thriving patches of marijuana.

A dry river snaked along the valley. Livestock grazed the uncertain terrain of the higher slopes, which featured particularly vertiginous, eye-hurting angles. The grazing animals might have been cows and horses—maybe even antelopes and bison.

Up above the slopes the sun was scudding across the sky like a wind-blown balloon. Jayson braked the bike and cut the engine. "Okay. Okay. What the hell is that up there?"

"That's the sun, Jayson."

"It's falling out of the sky?"

"No, man. Any space warp is a time warp as well. I'd say one minute here in this valley of the ants is about the same as an hour in the workadaddy outer world." Stefan cocked his head, staring at the racing sun, his eyes as bright as an excited bird's. "The deeper we go in, the faster the outer world's time rushes by. We'll be like a couple of Rip van Winkles."

Jayson threw back his head and laughed. "So by now those cops have given up and flown home!" He whooped again, as if recklessly trying to project his voice from the tiny ant crack beneath the cactuses off Mr. Noor's drive. "Kiss my ass, Lester!"

"I have to analyze this situation scientifically," said Stefan, growing fretful. "It's counterintuitive for time to run *slower* here than in the world outside. That's unexpected. Because usually small things are *faster* than large ones. Twitchy mice, sluggish elephants. But, oh, I see now, if the component strings of spacetime are *left-handed* seven-dimensional helices, then—"

"Then we're free men," said Jayson, kick-starting his bike with a roar. "Let's see if I can find us the local Fatburger. That baloney of yours left a bad taste in my mouth."

But there were no fast-food shacks to be seen in this idyllic landscape. The roads were mere dirt tracks. No electrical pylons, no power cables. No

big L.A. streetlights. No gutters, no concrete, no plumbing. Even the air smelled different; it had a viscous, sleepy, lotus-land quality, as if it were hard to suck the molecules through one's nose-holes.

In this bucolic stillness, the pop-popping of the old Indian was as loud as fireworks. An over-friendly yellow dog came snuffling up behind the slow-moving bike. Stefan turned to confront the stray mutt, and noted its extra, scuttling legs. It wasn't a dog; it was, rather, a yellow ant the size of a dog.

The ant's hooked feet skimmed across the valley floor, leaving neat little ant hoofprints. Intent on Jayson's motorcycle, she moved like a Hong Kong martial artist on wireworks and trampoline.

Jayson hastily pulled his chopper into the gorgeous flowers of a local yard. He killed the engine and the boys leapt from the bike. The ant tapped the bike all over with her baton-sized feelers—trying to initiate a conversation. The motorcycle was, after all, remarkably ant-like in appearance, with its red skin, handlebar feelers, bulging headlight eye, and the gas tank like a thorax. Receiving no response, the yellow ant studied the boys with her compound eyes, then bent her rear end around to smear a drop of sticky ant-goo across the bike's fat rear fender. She bent a bit awkwardly; judging from her lumpy abdomen, she'd recently had a big meal. And now, task done, she scuttled right along.

A weathered man in a white shirt, straw hat and chinos came out of the house and sat down on an old-style dinette chair. The vintage aluminum and vinyl chair was in much better condition than its age would suggest.

"Nice bike," said the old man, beginning to roll a cigarette. "What's it doing in my flowers?"

"Hyperio!" exclaimed Stefan. "I know you—I rent the cottage from Mr. Noor? I'm Stefan Oertel."

"Okay," said Hyperio peaceably. "I used to live in that cottage. Me and my first wife Maria. The gardener's cottage, the owner called it."

"Mr. Noor never told me that."

"Not him. Mr. Hal Roach, fella helped make those fat-man thin-man movies."

"Laurel and Hardy's producer!" said Stefan. "Wow. Serious time dilation. It's a real coincidence to find you here, Hyperio. I was looking for you because I have ant problems."

Hyperio seemed to think this was funny. He laughed so hard that he spilled the tobacco out of his cigarette. It was an odd, desperate kind of laughter, though, and by the end it almost looked like he was in tears.

"I'm sorry, boys," said Hyperio finally. "I'm not myself these days. My wife Lola is sick." He jerked his head toward his door. "My Lola—she's from way up Hormiga Canyon."

"Canyon of the Ants," translated Jayson. "What a great neighborhood. Can I live here? You got an extra room I can rent?"

"You'd pay me?" said Hyperio, looking maybe a little annoyed at Jayson's seeming lack of concern over his sick wife.

"Um, I'm low on funds right now," said Jayson, slapping his pockets. He

looked around, sniffing the air for collectibles. "That Deco moderne dinette chair you're sitting on—if I took that over to Silver Lake, I could get you two, three hundred bucks."

"I brought this from the gardener's cottage when I built this place for Lola," said Hyperio. "And I'm keeping it. I like it."

"Hey—do I see a wind-up Victrola through your window? You've got some old 78 records, right? You like that big band accordion sound?"

"You like *conjunto*, too?" Hyperio said, finally smiling. There was nothing for it but to step inside his house, where he proceeded to treat the boys to a leisurely wind-up rendition of "Muy Sabroso Blues" by Lalo Guerrero and His Five Wolves.

Grown hospitable, Hyperio produced a ceramic jug of room-temperature pulque. He gestured at a rounded lump under a striped Indian blanket on a cot. "My old lady," he said. "My Lola. She's got the *real* ant problems. Ants living inside her."

"But—" began Stefan.

"They make themselves small," said Hyperio, narrowing his eyes.

"Sure, sure, that figures," nodded Jayson, tapping his booted foot to the music. "How did you end up in Hormiga Canyon, Hyperio?"

"Okay, before Lola, I was living with my first wife Maria in the gardener's cottage," said Hyperio. "One day I found the way in. Yeah, hombre, I had good legs then. I walked the canyon very deep." Hyperio held out his fingers, branching in ten directions, with his cigarette still clamped between two of them. "Hormiga Canyon, it don't go just one way. The rivers run in, the rivers run out. But I didn't stop till I found my Lola. She's a real L.A. woman. The original." He sat on the creaking cot beside Lola and patted her damp brow.

"So you found Lola and—?" coaxed Stefan, eager to hear more.

"I was crazy in love with her at first sight," said Hyperio. "She was living with this *indio*, Angon was his name. From the Tongva tribe. Lola was too good for them. The Tongva people, they pray to the ants. They got some big old giant ants back there with legs like redwood trees."

"Wow," said Jayson. "I'd pay plenty to see those ants."

Hyperio got up and changed the record on his Victrola. "This is Lola's favorite song," he said. "Mambo del Pachuco" by Don Tosti and his band. She could really mambo, my Lola. Back in the day."

The syncopated strains of music poured over the woman on the cot, and she stirred. Hyperio helped her sit up. Lola was stick-thin, and her brown face was slack. She'd been sleeping in a kind of leather shift, hand-beaded with little snail shells. When Lola saw that guests had arrived, however, she rallied a bit. Swaying to the music from the Victrola, she threw firewood into the stove. She stirred a kettle of soup. She drank water from a big striped pot.

Then she doubled over with a racking cough. She spat up a mass of ants. The ants swarmed all over her hands.

Stefan and Jayson exchanged an alarmed look. But Hyperio wasn't surprised. He herded Lola back into bed, patted her, wrapped her up.

"She's working the Tongvan ant cure," said Hyperio, shaking his head. "They eat ants to get well, the Tongvans. Lola eats the ants, lots of them,

but she's still no good inside, not yet. That's why she wants me to take her back up canyon."

"Home to her people, eh," said Jayson. "I've heard about that tribe. The Tongvans. They were Californians, but like, before Columbus, basically?"

"The first, yes," said Hyperio. He reached behind a string of dried peppers near the ceiling and produced a leafy sheaf of cured tobacco. With the edge of an abalone shell, he chopped up the brown leaf, then twisted it in a scrap of newspaper. "You boys want a good smoke? Have a smoke."

Jayson snatched up Hyperio's hand-rolled cig. "These ants. Is redwood-tree-legs the max size they go?"

"They go bigger," said Hyperio. "The biggest ones live in a monster nest beyond the Tongvans. They say something is wrong with the ground there, like a tar pit. Lola still prays to those tar pit ants. Good cooking, praying to ants, that's my Lola. But pretty soon she likes it better here. She likes the music."

"How did your first wife Maria take it when you showed up with a prehistoric girlfriend?" asked Stefan. It was his fate forever to wonder how romance worked.

"All the way home I worry about that," said Hyperio, nodding sagely. "It only felt like I left Maria a couple of days, maybe a week, but when I get back, Maria is dead! It's twenty years later. I ask around—nobody remembers me. Not a soul. So I moved into Hormiga Canyon and built this little house for Lola and me. She gave me four kids."

"Where are they now?" said Stefan.

"Busy with grandkids," Hyperio shrugged. A metal pot danced and rattled on his iron stove. "Now we eat soup, eh? You want me to warm some tortillas?"

Raw wonder at the way of man and woman had relaxed Stefan's fixation on science for one moment, but now his string-mania came vibrating back at him. "I know why this canyon exists!" he intoned. "There's a fault in the weave of the cosmic strings that make up Los Angeles. And, yeah, that fault is this very canyon. The local Hormiga Canyon ants have co-evolved with the cosmic strings. That's why L.A. ants are so sneaky! The ants of Los Angeles have a secret nest in that tar pit of cosmic strings."

Jayson looked on him kindly. "Eat something, Stefan."

They had a little of Hyperio's squirrel soup—at least, the soup had some ratlike parts that were probably squirrel—and though the flavors of native Angeleno herbs like yarrow, sage, and deer grass were far from subtle, they did seem to brace one internally.

Buoyed by his scientific insight, Stefan was feeling expansive. "You're a fine host, Hyperio! Anything we can do to pay you back?"

Hyperio regarded the boys. "That motorcycle in my flowers—you got some gas in it? Lola wants to go back up canyon to her people. But I don't feel so good about this big trip."

"We can carry Lola in for you," said Jayson grandly.

"Dude," said Stefan to his friend in a low tone. "If we go deep into this canyon, we'll never see our own era again."

"So what?" said Jayson. "When we go up that canyon, we're going to a simpler, cleaner time. No smog. No pesticides. No politicians."

"I can give you boys an old map," said Hyperio, rising from his dinette chair.

Suddenly the room seemed to warp and twist. The walls creaked loudly.

"Earthquake!" yelled Jayson. He bolted from his dinette chair and banged his way through the door.

"Antquake," corrected Hyperio, unperturbed.

Stefan rose and peered through the door, clutching his laptop in both hands. Jayson was hastily rolling his bike away from Hyperio's house. Certain Angelenos were unnerved by ground tremors, but the pitching earth beneath his feet had never much bothered Stefan. In a hyperinflat-ing cosmos made of humming strings, it was crass to expect stability.

As Stefan stepped outside, it occurred to him to wonder how much time had already passed in Los Angeles, that city of fast fads, that pen of frantic chickens with their heads cut off. Although the Hormiga Canyon air was as luminous as ever, when Stefan peered upward he saw the night sky canopy, with a full moon bob-bob-bobbing along, rather like the bouncy ball in a sing-a-long forties cartoon.

If Stefan and Jayson went deeper, the spacetime warp would be even stronger. They'd be visiting a real-world laboratory of dimensional wonders. Yes, Stefan wanted to go. There was no choice about that, really.

Up near the dark, blurry lip of the canyon, a black ant the size of a 1950's prop-job airliner was hard at work. With an ant's busy clumsiness, her six legs grappled at the fibrous dirt, setting off little slides. She was groping around in the fabric of reality with her monster feelers, tugging at the substance of the canyon wall, pulling stuff loose: it looked like ropes or pipes. Cosmic strings. This ant was causing the tremors.

As she worked the fabric of the cosmos, distant houses shrank and grew as if seen through a shimmer of hot air. The black ant trundled down the valley wall, carrying a string in her jaws. The tangled bights of string glowed and shimmered; the lucid air hummed with a kind of music. The ant was unsteadily shrinking, first to the size of a house, then to the size of a car, and then to the size of a cow—and now Stefan realized that those "livestock" upon the hillsides of Hormiga Canyon were all ants, too.

A herd of them gathered around the big black ant in a companionable fashion, fiddling with her string, helping with some dim nest-building agenda. They worked off instinct and smell.

Lola appeared in the door of Hyperio's shack. She had a hand-woven string bag over her shoulder. She still looked peaked, but with the promise of a journey home, hope had returned to her haggard face. She and old Hyperio engaged in a tender, rapid-fire farewell in Spanish. She kissed him, and Hyperio picked a red ant from his mustache. With a scowl, he flicked it from his fingertip.

The ant hit the ground scrambling, bounded up and was the size of a panther. It sniffed the fender of Jayson's motorcycle, where the other ant had left its tag of sticky dew. Jayson doubled his fists.

"It's harmless!" Stefan called.

But Stefan was wrong. With an abrupt lunge and a twitch of her big head, the rangy red ant snatched Stefan's laptop from his unsuspecting

grasp. She smashed the computer with the clashing machineries of her mouth; the pieces disappeared down her gullet. And then she trotted on her way.

Livid with rage, Stefan took a step or two in pursuit—but then, surprising even himself, he halted. This cosmic-string ant was paying him a compliment by eating his laptop. Somehow she'd sensed the seeds of the One True String Theory within Stefan's flat gray box. Why else had they invaded Stefan's home in the first place? They were there to celebrate the fact that he was King of String!

Weak-kneed with his turbulent flow of emotions, Stefan leaned against the bike.

Jayson began messing with the motorcycle, hiking up the saddlebags to make a platform that could support Lola. "You'll be happier on the open road," he told Stefan. "Without that idiot box leeching your psychic energy."

"Is this bike gonna be big enough?" said Stefan.

"Down in Mexico a family of six would ride," said Hyperio. He laid a board and a folded blanket across the saddlebags, and Lola curled up on it, making herself small. She showed her teeth in pain, then gave the boys a brave smile.

"I bet she used to be beautiful," said Jayson. "I bet she used to look a lot like Lupe."

"You mentioned a map?" Stefan asked Hyperio.

Hyperio handed over a heavy yellow roll of dense, spotted leather. It had a few strands of coarse fur on the edges. It was buffalo hide.

"The Seven Cities of Gold," said Jayson, eagerly unfurling the scroll. "Quivira and Cibola." Jayson's chain mail wristlets glinted in the light like the armor of a conquistador. "The Spanish never found those 'lost cities.' I bet anything they're in this canyon."

"Los Angeles is the true lost city," said Stefan, peering over Jayson's shoulder. Hyperio's map left a lot to be desired. It had been drawn in blood and berry-juice by some guy who didn't get it about longitude.

The three travelers bid Hyperio a last goodbye.

The road running up the canyon was a much trampled ant-track. The little wooden shacks gave way to simpler dug-out huts and lean-tos. It seemed that the locals had never seen—or heard—a motorcycle before; at the machine's approach, they ran around in circles with their hands over their ears.

Pools of water stood here and there in Hormiga Canyon's dry river, more pools all the time. In certain dank and sticky patches—mud, maybe—huge bison had mired-in hip deep and been butchered by the locals. The boys had to dismount and coax the roaring cycle around these dicey spots, with unsteady Lola grimacing at the jolts.

The beach-ball sun and bouncing moon picked up the pace. The travelers reached a cross-marked spot on Hyperio's map. It was a settlement of low, adobe houses, with a big stone church. The central square smelled of corn tortillas and roasted pumpkin seeds. The locals, in dented straw hats and serapes, looked like extras from the set of the Fairbanks silent production of *Zorro*, except that they were in color, they lacked histrionic gestures, and they were audibly talking.

Eager to mooch some chow, the boys approached the stony well before the church. At the banging sound of their engine, the padre appeared at the church door. Shouting in Latin, he brandished a crucifix and a horse-whip. Jayson cranked up the gas and they rolled on.

They then entered what appeared to be a nature reserve, or, to put it more accurately, a no-kidding primeval wilderness. The human population, what little there was of it, vanished into the trees and scrub. The paths bore bear tracks, cougar tracks, deer tracks, and enormous Jersey-Devil style ant hoofprints. And the river had water in it now.

"One thing bothers me," said Jayson as a ground sloth lumbered by, leaving tufts of reddish hair in the blackberry brambles. "Seems like the ants should get tiny when they come around us humans. Everything else matches our size: the chairs, the tables, the trees. But the ants—the ants are all kinds of sizes."

"The ants can scale themselves to any size they need," said Stefan. "It's because they're in control of the subdimensional cosmic strings."

"Well, how come *we* can't do that?" said Jayson. "We're special-effects wizards, and ants are just a bunch of insects."

"Twine dimension seven, loop dimension eight," said Stefan thoughtfully. "If we could get hold of some of those strings, we just might find a way."

The glowing air of Hormiga Canyon never quite dimmed, so it was up to the travelers to decide when to bivouac. They gallantly let Lola set their pace, since she was frail and weary. To judge by the way she kept spitting off the side of her little platform, the ants were churning within her.

They made camp atop a little hill above the much-trampled edge of a river pool. To judge by the fang-marked pigs' knuckles buried in the mud, the pool was an excellent hunting spot.

Stefan gathered dry twigs and Lola expertly stacked a campfire. Jayson had somehow misplaced his cigarette lighter, but thanks to his multitool, he was able to conjure up a bowstring and a drill. Amazingly, a sharp stick spun fast in half-decayed wood really did smolder and ignite.

There were trout in the burbling river, fat and gullible. Stefan was able to harpoon the naïve fish with the simplest kind of barbed stick. The boys ate two fire-roasted fish apiece, and when Lola only nibbled at her tasty fish, Jayson ate that one too.

An orgy of ferocious grunts and squeals drifted up from the river pool. Nobody felt quite ready to sleep. Lola lay on her side watching the fire, now and then brushing an ant from her lips. Jayson kept obsessively adjusting the screws on the carburetor.

"I'll stretch out our fuel for as long as possible," he explained. "Us city boys will be in trouble if we run out of gas."

"Did you ever see *Mysterious Island*?" said Stefan, staring dreamily into the flames.

"Of course. If you mean *Jules Verne's Mysterious Island* from 1961, with the giant bird, the giant crab and the giant bees. That's a Ray Harryhausen flick. Harryhausen is the FX god!"

"Precisely. So, you know, the heroes are stranded on a wilderness island

with monsters and pirates. They have to, like, totally scrounge for basic food and shelter, and also craft some really hot homemade leather clothes for the female lead. . . ."

"That tight leather dress she had was bitchin'."

"It sure was. So, maybe we run out of gasoline, but I don't see how we have any big problem. I mean, we're FX guys—basically, we *are* Harryhausen."

"Huh. Maybe *I'm* like Ray Harryhausen," said Jayson. "But you're all digital."

"Don't sell my conceptual skills short, Jayson. We've spent our careers creating lavish fantasies on a limited budget. Working together, we're fully capable of scaring up tools, shelter, food, and clothing in a trackless wilderness."

Jayson narrowed his eyes. "What kinda fantasy-adventure costume you need? Nylon, spandex?"

"Antskin would suit our parameters."

"I could do antskin clothes," mused Jayson. "I could craft flexible antskin armor."

"You see?" said Stefan loftily. "I gave you that concept. We're a team. No wonder we feel so much at home here. This place, Hormiga Canyon, with, like, the monsters and colorful natives—this is the soul of Los Angeles. That stuff we left behind, that's nothing but Tinseltown! There today, gone tomorrow."

Jayson looked up thoughtfully at the whizzing sky. Days and weeks were rushing by.

"Why would we want to return to that life of cheap illusion?" added Stefan, sounding braver than he felt.

"Lupe wasn't a cheap illusion," said Jayson. "Other people aren't illusions. Lupe was so real. She was too real for me. I never knew enough real people, Stefan. I was always way too busy feeding the baloney machine." Jayson turned his face away from the fire and scrunched down into the comfortless pillow of his jacket.

Stefan sat in silence, giving his stricken friend some privacy. Soon Jayson's shoulders began twitching. He was crying? No, he was rooting in the dirt with his multitool.

"Look what I just found," said Jayson, studying the scuffed dirt beside the blanket. "This is one of those ant strings. It glows." He gripped the cosmic string with the strong metal jaws of his pliers. Flexing his tattooed arms, he gave it a muscular tug. The string twanged like a badly tuned harp. A slight shudder went through the fabric of the real.

"Those spoiled academic physicists would trade in their tenure to see this!" crowed Stefan, lying down on his side to observe the phenomenon. "You've got hold of a naked cosmic string! And listen to it! It's humming a natural fourth with three overtones. That proves the existence of the Higgs particle!"

Jayson deftly popped the cosmic string loose from the fabric of space-time. Torn from its context, the string coiled and rippled like a ruined Slinky. Jayson's fingers shrank and grew like ripples in a mirrored pool. "Awesome visual effect, huh?"

The space around them shivered a bit; which seemed to have some effect on the ants in Lola's belly. Abruptly she sat up, yowling in wordless pain. She clutched at her midriff and fled into the woods.

"At least she's on her feet," Jayson noted. "Maybe these space-shudders are doing the old girl some good."

"I'm not sure you ought to pluck those strings right out of reality like that. You could set off a major antquake."

"Hey, I'm getting away with it," Jayson shrugged. He clacked the pliers. "I can kink this stuff. I can even cut it. Let's see if it'll make chain-mail."

"Twine dimension seven, loop dimension eight," intoned Stefan.

The air gave tiny, tortured shudders as Jayson obsessed with his craft: "Okay, you coil it into a long spring first, then you cut it into open rings. And, yeah dog, I can kind of see the higher dimensions. Twine 'em, loop 'em, squeeze 'em—and the loose ends stick together like soldering wire. Chain-mail."

"I'd never have the patience for all that," said Stefan, shaking his head.

"I'm like a cosmic ant," said Jayson, calmly knitting away.

Stefan left to search for Lola. His tracking skills were none of the best, but when he came across a steady stream of ants, Lola wasn't far. She was leaning against a tree. She'd retched a great bolus of ants from her innards—and her sickness had left with them. She looked much healthier.

They dozed for a few hours, rose and pushed on. Hyperio's map got them past another tricky branching—but then they got hung up at a gnarly crossroads of five arroyos. There was a natural fountain gushing up in the river junction, a subterranean geyser of clear water, with the rivers cheerily running out from it in all five directions. Hormiga Canyon was an Escher ant-maze.

Stefan turned the precious leather map from side to side, like a monkey pretending to read a book. "I wonder if this troglodyte map-maker even knew about North and South."

Jayson was poking in the wet black mud at the river's edge. "Bonanza, dude! This river muck is full of loose strings!"

An orange ant the size of a miniature submarine came churning up out of the river water. Like an implacable homing missile, she ran for Stefan, seized the map and gobbled it down. And then, obeying the dictates of some distant scent signal, she scuttled away.

Stefan's confidence cracked. "Why did you get me into this hopeless mess?" he yelled at Jayson.

"I think this was one of your grand concepts, wasn't it?" said Jayson, not looking up. He was knitting cosmic strings into a wristband.

Lola had never given one glance at the map, so the loss of it did not concern her. She was feeling perkier today, and more than ready to give directions. Perched atop the rear fender, she offered Sacagawea-style pointed hints, and the boys followed her intuitions.

The familiar oak and laurel trees gave way to thirty-foot-tall tree-ferns: palm-like trunks with great punky frizz-bops of fronds. Bright, toxic-looking speckled mushrooms grew from the rich, damp soil. The tops of the cliffs had grown too high to see. And the narrow band of visible sky was flickering from light to dark to light every few seconds.

This crooked branch of Hormiga Canyon was densely cluttered with dun-colored, outsized, primitive herbivores. These prehistoric American megafauna showed little fear of humans. Small ancestral horses were striped like zebras. Long-necked camel-like creatures stank and slobbered. Carnivorous ur-pigs with flesh-rending tusks ran like the wind. The rather small and dainty Californian mastodons were merely twice the size of large elk.

It became clear that Lola was a proud, resourceful woman. Plucking dry reeds from the river's edge, she deftly wove herself a gathering-basket. She imperiously stopped the bike to gather chow, stashing high-fiber Pleistocene bounty in the saddlebags. Cat-tail roots. Freshwater clams. Amaranth grain cut off the tops of pigweeds. When they finally bivouacked, the energized Lola bagged them a fatally innocent antelope by the simple expedient of clubbing it to death with a rock.

Jayson built them a fire, then set to work kinking his cosmic strings.

"You've got to become one with your craft, man," babbled Jayson as a sweating Stefan methodically barbecued an antelope haunch. "My cosmic wristband is talking to me right now. Really. It's saying, like, 'Hi, I'm here.' And, uh, 'Thank you for making me.' I'm fully in tune with its cosmic inner vibrations. I'm on the same cosmic wavelength. Soon I'll be able to focus its cosmic energies." Jayson glared up, daring Stefan to dismiss his claims.

Steadily Stefan spun the dripping, spitted meat. "Jayson, your theory is entirely plausible. These strings are quantum-mechanical. By working with the strings, you, as Man the Toolmaker, entangle yourself in their quantum state. You and your wristband form a coherent system with a unitary wave function."

Jayson nodded, crimping away with his hard steel pliers. "And when this wristband is done and I'm wearing it, I'll be a master of the scale dimension! Like the Hormiga Canyon ants!"

As if on cue, an ant the size of a Volkswagen appeared beside the fire, sniffed a bit at the baking amaranth bread, then edged close to Jayson, watching his nimble fingers at work. Seemingly fascinated, the ant went so far as to run one of her feelers over the little swatch of chain-mail.

"Shoo," said Jayson mildly, and the ant pattered off.

"Food's ready," said Stefan.

As the three travelers feasted, the luminous canyon air was split with lurid, gurgling screams as monster bears and howling dire wolves culled the herds. Jayson heaped armloads of wood on their bonfire, but they didn't sleep well at all.

When they arose, Stefan took the controls of the motorcycle so that Jayson could focus on finishing his wristlet. Lola, with her basket, sat on the rear fender, bright-eyed and chipper.

They discovered a path that bore heart-cheering human footprints. A river was nearby, running in the same direction they were traveling.

"Dig this," said Jayson over Stefan's shoulder. He shoved his hand forward to show off his completed wristband. It was beautiful; the light that fell upon it shattered into sparks of primary colors.

"Tongva," murmured Lola, sniffing the air.

Part 3

A colossal ant burst from a thicket of manzanita, bearing three fierce-looking natives. The riders were clutching the ant's insectile bristles like Mongols holding a horse's mane. They were deeply tanned men with filed teeth, floppy hair, and bizarre patterns painted on their faces. Original Californians.

The Tongvans sprang at Jayson and Stefan; seconds later the boys were swathed in woven nets, wrapped up like pupas side by side.

The largest Tongvan leaned over Stefan. He was a wiry, dignified gentleman just over five feet tall. He'd painted an intricate pattern of fern-like scrolls around his eyes and mouth. He had a deeply skeptical, highly judgmental look, very much like an overworked immigration officer at LAX.

Lola sashayed forward and tapped the man on the shoulder. She straightened her time-worn leather shift, preened at her gray hair, and began talking in Tongvan, addressing him as "Angon."

"Her husband!" Stefan hissed to Jayson.

It seemed Lola was telling Angon at length about what had happened to her in the impossibly complicated meantime since they'd last been together.

Angon tried to maintain his hard-guy expression, but as the facts sank in, his face began to quiver. Relative to Angon's experience of time, it had only been a few days since Hyperio had kidnapped his young wife Lola. And now Lola was back—decades older, a sickly crone. Angon cracked and lost his composure. He rubbed his nose against Lola's weathered cheek; the tears flowed.

"Aw," said Jayson.

Angon glared down at the boys. He hollered in Tongvan and raised his flint tomahawk.

"Stick with me," said Jayson, worming himself close to Stefan. "Abracadabra."

Suddenly Jayson and Stefan were the size of rodents. They scampered through the nets and fled into the underbrush. The angry Tongvans crashed about while their ant mowed down ferns with her mandibles—but the boys had deftly taken shelter beneath the red parasol of a toadstool.

The giant ant lumbered off and the Tongvans abandoned their search. From their hiding place the boys watched the Tongvans wheeling Jayson's motorcycle away, with Lola still talking.

"We're not gonna fit in with these people at all," said Stefan. "Hyperio was jiving us. We should head back to town right now. As it is, we're gonna lose thirty years."

"I say we push in further," said Jayson. "I want to see that giant tar pit." He studied his wristband. "What if I make us into giants and we just go grab my bike?" With a sudden popping sound, they grew back up to normal size—but no further. Jayson popped them a couple more times, trying to break through the barrier of normal scale.

"Stop it!" said Stefan, feeling dizzy and whiplashed. He steadied himself by grabbing Jayson's arm. "Look at your wristband, dude, that link-pattern is asymmetric. You're gonna need to weave a mirror image wristband if you want to make us grow."

Jayson dropped them back to small size and cheesed his teeth at Stefan. "Okay, then for now we'll be rats. Let's skulk over and spy on the Tongvans. I want my bike back."

The Tongvans were sitting in a semicircle before a chiseled stone altar. Perched atop the altar was the red Indian Chief motorcycle. Skinny old Lola was entertaining the tribe by showing them the mambo. Angon looked deeply disheartened.

The boys heard a twitter, a subsonic roar. High above them, huge mandibles stood starkly outlined against the endless, towering cliffs. A monster hooked ant-foot, as thick and red and barky as any sequoia, pounded straight into the ragged fabric of space-time. The great jaws swooped down and snatched up the Indian motorcycle.

The whole canyon shivered as the titanic ant stalked away.

In the stunned excitement, Stefan and Jayson restored themselves to normal size and brazenly stole one of the Tongvans' dugout canoes. They sped down the river with no sign of Tongvan pursuit.

Deprived of his bike and sullen about it, Jayson worked steadily on another wristband, while Stefan sat in the prow. He used a pointed Tongvan paddle to guide them past the rocks, logs, and silent alligators that adorned the stream.

The time dilation was accelerating. The visible sky was but a bright wriggle, and the days and nights pulsed so fast that the worm of sky was a steady dim glow. The high squiggle reminded Stefan of the tentative smile Emily Yu had worn when she talked of her hopes and dreams—all long gone by now. Decades were flying past, centuries.

Calamitous sounds came from the stream ahead: a roar, a trumpeting, and some sweet, pure music, a primitive universal sound like Peruvian pan pipes or Moroccan flute. And then rapids hove into view. This was the roar. Standing amid the rapids was a herd of twenty-foot-tall mammoths with immense curved tusks. This was the trumpeting.

"The wristband's done! Let me fasten it on you, dog."

"Beautiful."

Upon donning his wristband, Stefan understood all. It took but the slightest effort of his will to grow them both to a height of fifty feet.

Gingerly they sloshed through the minor puddle of the rapids, scattering the little mammoths like poodles. The toy canoe bobbed ahead of them emptily—and suddenly disappeared. The river ended in an immense, scale-free cataract, tumbling into fog. Something vast and gleaming lay beyond.

Stefan shrank them back to a scale that felt more or less normal. They stood on a boulder by the falls, leaning on each other and panting for breath, taking in the staggering view.

It was an immense glistening lake, many miles across, with endless flocks of birds slowly wheeling above it. Ants scampered about on the lake's mirrored surface, elegant as ballet dancers, some as big as ships, others like winged dust motes. Inconceivably vast ant-feelers projected like misty towers from the pit's distant center. In some spots the ants tessellated together to make flowing tiled carpets. Eerie cosmic string music filled the air, the sound almost unbearably haunting and sweet.

"The canyon's core," breathed Jayson.

But here came one last meddling ant, ineluctable as a tax collector, an officious pinkish critter the size of a school bus. Before the boys could manage to shrink or grow, she'd seized them both in her jaws. She carried them through the mist, squirming and howling—and dropped them like trash by the mouth of a cave near the base of the falls. She hurried off on other errands.

"What the hell?" said Stefan, rubbing his bruised shoulder.

Lying in the cave was Jayson's motorcycle—a bit chewed and bent, but still functional. Next to it were the half-digested pieces of Stefan's laptop, a few scraps of Hyperio's map, and even the debris of that Tongvan canoe they'd just been riding.

"So the goddamned ants know all about us, huh?" said Jayson, rubbing his sore ribcage. "God, I hate them."

"A single ant doesn't know squat," said Stefan. "Ants are like individual neurons. But, yeah, there's some kind of emergent hive mind happening. Like a brain. Like an ultracalculator. The hive sensed the cosmic harmony emanating from my house. Ants are natural-born collectors; once they got interested in us, they had to gather all the Stefan and Jayson artifacts into one spot."

"They ruined the paint on my motorcycle, man," fumed Jayson, not really listening.

A dog-sized yellow ant trotted up and regurgitated—a few hundred elderly cell phones.

"What is *that*?" cried Stefan, not wanting to believe what he saw.

"Your homemade supercomputer," said Jayson, shaking his head. "My website."

"My baskets of cell phones?" cried Stefan. "They're lugging all my phones here?" Stefan picked up a phone and opened it. The phone's components were quite dead; munged by ant jaws and eaten away by stomach acids. Another yellow ant approached and burped up more phones. Perhaps a hundred more yellow ants were following in her wake.

A bit disconsolately, the boys wandered the shore of the giant lake. The edges were treacherous. Thin sheens of water glistened atop a viscous, sticky, string-based equivalent of tar. The string tar had claimed some victims, unfortunate beasts who couldn't take the irregular transitions of scale, their bodies warping like balloon animals, their overloaded tiny hearts bursting from the effort of pumping blood to heads swollen to the size of refrigerators. Tigers and wolves had feasted upon the dying creatures, and had fallen captive to the string-tar themselves. Flies and condors darted and zoomed above the deadly tar pools, their proportions changing in mid-flight. The pools stank of carrion.

It was sickening to even try and imagine how fast the world's time was flowing relative to this forgotten place.

"My Calabi-Yau search program is lost to mankind," mourned Stefan. "How will they ever learn the One True String Theory?"

"Maybe you whiffed on mankind," said Jayson. "But I'd say you went over very big with the ants."

"That's true," said Stefan, brightening just a bit. "And you know what—I bet the ants are in fact using my discovery to weave the world. Our discovery. They learned from touching your chain mail, too, Jayson. Twine

dimension seven. Loop dimension eight." Stefan was talking louder, puffing himself up. "The ants built our universe, yes, but we showed them how! It's a closed causal loop. We're the lords of creation."

"If you're God, how come we're so screwed?" said Jayson. "We've gotta get out of here."

Huge, tanker-like ants were skittering across the mirrored lake in a regular rhythm. The big ants were regurgitating food near the pit's wheeling, starry center, then scurrying across the great gleaming lake to mount the inconceivably tall canyon walls, presumably to forage for food in the outer world.

"You thinking what I'm thinking?" said Stefan.

"Yeah," said Jayson. "We hop a tanker ant and we ride it up those cliffs. We end up outside Hormiga Canyon."

"The fast track to far-future L.A.," said Stefan. "Let's do it."

"Help me with the bike," said Jayson, turning back toward the cave.

"The *what*?"

"Come on, it'll start. They built bikes to last, back then. We'll do a stunt-man number. We'll speed up, ride up that stone ramp over there, and we land on the back of a giant ant. That'll be a bitchin' effect."

Stefan was doubtful, but of course Jayson's plan worked. They landed like ant-lice on the hide of a tanker ant the size of a ship. The behemoth took no notice of them. The boys wedged themselves, and Jayson's machine, among the giant ant's weird organic landscape of chitinous pores and uncanny bristles. Then they held tight.

The tanker ant surged upward, ever upward, and—emerged onto a sunlit, dusty California hilltop. She hesitated, tasting the air with her feelers. The boys rolled themselves and the bike off the ant's back, sliding onto the familiar yellow grass. For her part, the ant headed into a nearby apricot orchard and began harvesting the fruit-laden trees whole.

Here outside the Canyon, the sun no longer moved in that frenetic fashion. This California sun was setting gently and respectably, in the west, the way a sun ought to set. The sun looked rather too weary, too large and too red. But sunsets were always like that.

Down the hillside was a long, dusty highway, a black, paved, four-lane strip with white stripes down the middle. From the distance came a shining, metallic truck. As it passed them by, with a doppler whoosh, it resolved into a long-haul *ant*, a rolling monster with a big-eyed head like a truck-cab, a fully-rounded cargo belly, and six stout red leg-axles, adorned with six big whirring black wheels.

Shielding their eyes, the boys followed the departing ant-truck with their gaze. There were sunlit towers scraping the horizon, gleaming and crystalline.

More vehicles passed then, in deft, high-speed cluster-groups of traffic. The whizzing cars and trucks were all segmented, six-wheeled, and scarily fast. Low-slung, gleamy speedsters. Burly station wagons.

The boys wheeled the motorcycle downhill to the dusty edge of the busy freeway. Their hair was tossed by the backwash of passing ants.

One of the vehicles, a black and white one with large red eyes, slowed to give them a once-over. Luckily it didn't stop.

Jayson sniffed the highway air. It smelled like burning booze poured over a fruitcake. "Well, they've got fuel," he diagnosed.

"I wonder how ants managed to evolve internal combustion engines."

"Heck, dog, I'm wondering how ants managed to evolve *wheels*."

"In their own diffuse, distributed way, these ants have got some kind of mandible-grip on the laws of nature," said Stefan. Gently he cleared his throat. "That's largely thanks to me, I suppose."

"Gotta be a filling station up this road somewhere," said Jayson, ignoring him. "We're down to our last quart." He kicked his Indian into life. Stefan hopped on.

As they motored into the sprawling heart of Los Angeles, it was clear as the fruit-scented air that they were eons into the future. Stefan had always known his town as a jammed, overloaded, makeshift, somewhat threatening city, with large patches of violent poverty and film-noir urban decline. This Los Angeles was as neat as a Le Corbusier sketch: spacey radiant towers, picturesque ragged palms, abundant fruit trees.

Sure enough, they came across a nearly spherical cask-ant dispensing distilled fruit alcohol from her rear end. When prodded by the handlebars of Jayson's bike, she dribbled a handy fill-up into his tank.

Twilight fell, and little ball-shaped lights blinked on. They had no visible source of power.

"String theory on parade," said Stefan, pointing them out to Jayson. "Zero-point energy. I was planning to invent all that some day."

"Sure, dog, sure."

Every ant within this city was a wheeled giant. The ants were clearly the dominant species in town. Most of the city was devoted to their cloverleaves, off ramps and parking lots.

Then there were the people: gleaming, healthy Californians with amazing skin-tones. There were steady little streams of them, going about their own business, often with bundles on their heads: water-jars and fruit-baskets, mostly. It seemed that humans as a species had been much harder to kill off than one might have expected. These far-future humans were not making much of a fuss about themselves any more, but given how many were deftly creeping in and out of cracks in the shining towers, they probably had the giant ants outnumbered.

"They're all walking," Stefan noted.

"Nobody walks in L.A! We're the only cats in this town with our own wheels?" Jayson lifted one hand from the throttle. "Hey look! My cosmic string wristband is gone."

"Everything except the ants is the right size here, dude," said Stefan, examining his own bare wrist. "That means our bracelets are smaller than protons now."

Jayson waved his wrist as if this news stung him a little. Then he suddenly veered to the side of the road. "Hey dog, check her out! This rich chick is flagging us down!"

The woman in question was wearing a fetching little antskin cuirass. Her glossy hair was high-piled on her head and she wore a necklace, a belt, and neat platform sandals. She had an unknown flower in her hair and a very nice tan.

"Pleased to meet you," said Jayson gallantly. "Do you speak Eloi?"

The woman thoughtfully caressed the glassy headlight of Jayson's bike. The two boys were dirty, unshaven, and stinking of camp-fires. They also spoke no known language and were riding a mechanical ant, but their new friend seemed willing to overlook all that. She might even think such things were cute and dashing.

She smiled at Jayson in a sunny, mystical fashion, opened her beaded shoulder-bag, and offered him a fresh orange.

Jayson ripped into it, grinning.

"She's not your normal type, Jayson."

"Yeah, she's a cool, classy dame straight outta Beverly Hills! I think my luck is finally changing!"

A small crowd of men, women, even children clustered around the bike. These sidewalk gawkers definitely liked a show. They chatted pleasantly, tapping each other reassuringly on the heads and shoulders.

"We're drawing a big crowd," Stefan said. "Should we split?"

"Are you kidding? This is the public! We'll entertain them!"

Jayson fashioned a bit of his orange peel into a set of jack-o-lantern snaggle teeth and wore them in his mouth. The woman in the antskin cuirass laughed with pleasure.

Stefan picked up a smooth pebble on the ground, showed it off to the gawkers, palmed it, and pretended to swallow it. The onlookers were stunned. When he "burped it back up," they applauded him wildly.

Stefan gazed across their pleased, eager faces. "This is a very soft audience, Jayson. I think they're truly starved for techno-wizardry."

A shy girl stood at the back of the crowd. She looked sober and thoughtful. She knew he had done a trick. She wondered why. She was like Emily Yu: smarter than the rest, but too tenderhearted.

Stefan waved at her and offered his best smile. She stood up straighter, startled. She looked from one side of herself to the other, amazed that he was paying attention just to her.

He beckoned at her. He pointed. He waved both his arms. Yes, you. She was so excited by this that he could see her heart beating softly in the side of her throat.

He was instantly in love. ○

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DEAD HORSE POINT

Daryl Gregory

Daryl Gregory, the author of the 2005 Asimov's Readers' Award-winning novelette "Second Person, Present Tense," returns to our pages with another haunting science fiction tale. Of "Dead Horse Point" he says, "I lived in Utah for a year, and that park was our favorite place to camp. In a shoebox somewhere I have a picture of myself sitting on the exact outcropping of rock that the characters find themselves perched on near the end of the story." Daryl recently sold his first novel, *Pandemonium*, to Del Rey Books.

Twenty-three years of silence and all it takes is one call. Not even a conversation, just a thirty-second message on her voicemail. Come now, Julia's voice says. Come now before it's too late. From anyone else it would have sounded melodramatic, but Julia never exaggerates; she's always careful with her words. Venya books a flight to Utah the next morning.

Later she'll think, wasn't it just like Julia to say it like a command. As if Venya had no choice but to come.

The park ranger tells her where to find their campsite but the RV is locked, nobody home. She sits in the rental car for an hour with the engine on and air conditioning blasting, reading park maps and informational pamphlets and squinting out at the hard sunlight, until she sees the two figures walking down the campground road toward her. They look like they've been on a long hike. Kyle's shirt is tied around his waist and his chest shines with sweat. Julia, following in his wake, wears hiking shorts and a webbed belt, plastic water bottles at her hips like six-guns. Both of them walk head down, lost in thought.

Venya steps out of the car but it's another minute before Kyle looks up and sees her. At first the only expression on his face is exhaustion, but then he recognizes her and puts on a smile, becoming the winning boy she met decades ago.

"Oh my God," he says, loud enough for her to hear, and laughs. He glances behind him at his sister but she doesn't look up.

Kyle reaches Venya and holds up his hands. "I can't hug you, I'm too sweaty!" he says, but Venya steps in and hugs him anyway. The last time she saw him he was a pale, hyper kid of twenty. He's in his mid-forties now, but still tanned and fit, hair grown to messiah-length and sun-streaked. Only his face hints at his age, and that is masked by his wild smile.

"I can't believe it," he says. "How on earth did you find us?" He steps out of the way. "Julia, it's Venya."

Julia doesn't raise her head. She frowns in concentration at a point somewhere past Venya's right hip. Her hair is gray shot with black, a negative of two decades ago. Kyle must have decided to have it cut into something short and easy to maintain; Julia wouldn't have had an opinion.

"How you doing, Jay?" Venya says to her.

Her eyes remain fixed on empty air.

"The same," Kyle says.

He pulls a key from his shorts pocket and unlocks the RV. Julia follows him inside automatically. It's cooler inside, but not by much, and the air smells of ripening fruit. Kyle starts the RV's engine to boost the air conditioning.

The vehicle looks new—probably a rental—but Kyle and Julia seem to have been living in it for several weeks. The counters are crowded with food wrappers, unopened groceries, and stacks of paper plates. Books and papers cover the little table and most of the seats.

Julia sits at the kitchen table. Kyle fills a plastic cup with ice from the small fridge, pours in some water from a collapsible jug, and sets it down in front of her. She lifts it to her lips without blinking.

"How about you?" Kyle says. "I've got beer, bourbon, juice—"

"Some of that water would be good." Venya restacks some books that have spilled across the bench seat and sits down opposite Julia.

Kyle fills a cup for Venya, then opens a bag of dried apricots and sets it down on the table facing his sister. Without shifting her gaze from the tabletop, Julia reaches into the bag and puts an apricot in her mouth.

"I was driving out here from the airport," Venya says. Kyle gulps down a cup of water and starts refilling it. "I'd forgotten how empty the highways are. I'd look down at the dash and realize I'd covered forty miles without realizing it. I thought, this must be what it's like for Julia. Autopilot."

"Julia's driving a lot these days," he says. "And I'm still the road she follows." He finishes the second cup-full. "I'm going to get a clean shirt on. You okay with her?" Before she can answer he says, "What am I talking about, you did it for seven years."

What he doesn't say: seven years, not twenty-three.

Watching Julia eat is still an unnerving experience. She chews methodically, swallows, and reaches for another piece of fruit, automatic as eating movie popcorn in the dark. The entire time her eyes are focused on some inner landscape.

"How long has it been since the last time she was awake?" Venya calls back.

"Three weeks?" A note of embarrassment in his voice. "Maybe three and a half."

"That can't be," Venya says.

Kyle comes back into the main cabin wearing a faded blue T-shirt. "It's gotten a lot worse since you were with her, Venya. At Stanford she was never gone longer than what, a couple of days?"

"Julia called me two nights ago," Venya says. "A voicemail message. She said she was calling from the Dead Horse parking lot."

"That's impossible." But he's looking at Julia. "She must have come awake at night. I don't leave her alone—" He shakes his head. "I don't. She must have come awake in the middle of the night and snuck out."

Julia lifts her plastic cup and sets it down without sipping; it's empty. Kyle takes it from her and refills it.

"What did she say?" he asks. "On the phone." From the middle of the mess on the counter he picks up a glass—a real glass, not plastic—and blows into it.

"Not much. She said you two were staying here at the park. She's working on a hard problem. Something important."

He unscrews the cap from a half-full bottle of Canadian Mist and pours a couple of inches. "That's true. Then again . . ." He smiles.

Then again, Julia is always working on a hard problem. Even in undergrad, when she resurfaced from one of her "away" times, she'd start writing furiously, page after page, as if she'd memorized a book she'd written in her head and had to get it down before it evaporated. She'd talk as she wrote—explaining, elaborating, answering Venya's questions—making Venya feel that she was part of the solution, some necessary element in the equation.

Kyle holds up the bottle but Venya shakes her head. He shrugs and sips from his glass.

Venya says, "She said she needed me to come down, before it was too late."

Kyle's grin falters, and for a moment he looks a decade older.

"How bad is it?" Venya asks. "How much is she gone?"

"Ah." He turns the glass in his fingers. He takes a big sip, then presses his lips together. "The past couple of years she's been away more than she's been awake," he says finally. "The trend line's pretty clear. We always knew lock-in was the probable end point." He says it matter of factly, as if he's practiced saying it out loud.

"This had to be tough on you," Venya says.

He shrugs, and the smile is back. "She's my sister. And her work is important. She really does need someone to help her organize it and get it out there."

"I read your book," Venya says. "The cover had her name on it, but I knew those sentences were yours."

He laughs, nods. "Julia's much too addicted to passive voice for pop science." He lifts his glass. "Thank you, and congratulations—you're the only one of our thirteen readers to have seen through the charade." He tosses back his drink, sets down the glass, and claps his hands. "But enough about us imposters! Let me get you settled in, and we'll do some barbecue."

Julia stares at the table top as if it holds an equation about to unravel.

The cement shower stalls of the campground washhouse remind Venya of the first semester in college, the year she met Julia. Venya stands in the cold stall for a long while with her head bowed, letting the hot water drum the crown of her skull and pool around her veined feet. She thinks, this is exactly how she found Julia that day.

They'd only been roommates for a few weeks, two first-year women assigned to each other by the University of Illinois mainframe. Julia came from money, her clothes made that clear. She was pale and beautiful and solemn, like one of those medieval portraits of a saint. She rarely spoke, and only an occasional, fragile smile betrayed her nervousness.

Venya was a little put out by the girl's reserve. She'd come to school with the idea, picked up from God knows where, that college roommates were automatically *best friends*. They'd decide on posters together, share clothes and shots of Southern Comfort, hold back each other's hair when they puked. But after a few days of trying to get the skinny, quiet girl to open up, Venya had almost gotten used to the idea that Julia was going to be little more than a silent reading machine that lived on the other side of the room.

One morning during the third week, Venya woke up late, dashed into the big bathroom they shared with the other girls on the floor, and quickly brushed her teeth to get rid of the dead-shoe taste of stale beer in her mouth. As usual, Julia had gotten up before her, and Venya saw the girl's green robe hanging outside one of the stalls, the shower running. Venya went off to her back-to-back morning classes, then to lunch. It was 12:30 or 1:00 before she went back up to her floor to drop off her books and take a pee.

Julia's green robe still hung on the hook, and the shower was still running.

Venya must have called Julia's name—that would have been the natural thing—but she only remembered running to the rubber curtain and yanking it aside. Julia stood under the spray, looking down at her feet. The water was still running hot, thanks to the industrial-sized boilers in the building, but the woman still shivered. When Venya grabbed her arm, Julia immediately stepped out of the stall to stand beside her.

Venya couldn't get her to speak, make eye contact, or even change expression. But Julia obligingly allowed herself to be dried off, led back to the room, and tucked into bed. She lay there with her eyes open, staring past the ceiling.

Venya's first thought was that someone had dropped LSD into Julia's breakfast. But the symptoms were all wrong—no acid trip, good or bad, was this calm—and in fact the symptoms didn't match any drug she had experience with (and she'd experienced more than her share). She didn't want to get Julia in trouble, but she finally decided to call the R.A., who called the paramedics, who took Julia to the ER.

Julia snapped out of it sometime during the night. She suddenly sat up in the hospital bed, looked over at Venya, and asked for pen and paper. The doctor on duty shook his head disbelievingly; he made it clear to

Venya that he thought Julia had been faking the whole thing. Julia apologized, but kept scribbling.

At four AM her family arrived. A thirteen-year-old boy bounded into the room and jumped onto the bed next to Julia. Her father and mother came next. Professor Dad, as Venya instantly decided to call him, shook her hand, thanked her for staying with his daughter. Professor Mom sat down in the chair next to the window, holding a silver pen in her fingers like a cigarette she was dying to light. Julia said hello to each of them, and immediately returned to her writing. The boy kept up a running comedic monologue: about Julia's gown, the age of the hospital, the fat nurse by the front desk. Even then Kyle was the entertainer, the performer, the distracter. So it took Venya some time to figure out that the parents were arguing. It took her even longer to realize that the argument had been going on for years.

Professor Dad made oblique references to Julia's room at home; Professor Mom scowled and shook her head. "She needs help," she said at one point. "Professional help." There were no questions, no talk about what had happened in the shower: Julia had "disappeared" before, evidently, and would disappear again.

Later Venya would hear the whole medical history, how when Julia was a child they diagnosed her mental absences as petit mal seizures. After CAT scans turned up nothing, they called it mild autism. As she grew older and the gaps grew longer, they started calling it Disassociative Identity Disorder, which was just a fancy name for multiple personalities. One psychiatrist thought there was a "monitor" personality who could perform daily tasks while the Julia personality went somewhere else. But Julia never bought the Sybil explanation. When she "woke up" she remembered most of what had happened while she was out. It didn't feel like there was another personality in her. And she knew the difference between the two states—she knew when she'd been out.

The way Julia described it, her condition was the opposite of Attention Deficit Disorder: she couldn't *stop* paying attention. An idea would occur to her, and then she'd hop on that train of thought and follow it right out of Dodge. She was missing some neurochemical switchman who could move her attention from reverie to awareness of the outside world.

But in the hospital, Venya understood only that Dad wanted Julia to come home, and Mom wanted her to stay in a hospital, any hospital.

And Julia?

The girl stopped writing. She put down the pen, folded the papers in half, then in half again. Her expression was tight, and her eyes shone with unshed tears. "I can do this," she said finally.

They didn't seem to hear her. Her father and mother continued to argue in their cool, knife-edged voices.

Kyle turned to Venya and silently mouthed: *Do Something.*

Venya looked away, but the idea had been planted. A terrible, awful, stupid idea.

She raised her hand, and the professors dutifully stopped talking. "How often?" Venya asked. They turned their attention to her, as if regarding

her from podiums at the far end of a great lecture hall. "How often does this happen?"

Professor Dad shrugged. "Hardly ever, anymore. She made it through senior year without—"

"That's not true," Julia said quietly. She caught Venya's eye and held her gaze. "Three or four times a week, a couple of hours at a time. But they're getting longer."

Venya nodded, as if this made perfect sense. She stared at the shiny hospital floor so she wouldn't have to see the entire family looking at her.

Keep your mouth shut, she told herself. This is not your problem.

"Okay," she said. "I'll do it." She offered to watch over Julia for the rest of that semester. Only a semester.

Venya still doesn't know why she did it.

There was nothing in their relationship to that point that obligated her to help. The offer made sense only in terms of what came after, as if the next seven years—in which she led Julia through undergrad and grad school, and along the way became Julia's best friend and then, eventually, her lover—caused her to speak at that moment.

Julia accepted Venya's offer without comment.

They eat their dinner at the picnic table, in the shadow cast by the bulk of the RV. Six PM in September and it's still in the nineties, but the lack of humidity makes for a 20-degree difference between sun and shade. All around the campground, people fire up grills and pull open bags of chips. At the campsite next to them a van full of twenty-something Germans laugh and argue. The sky hangs over them, huge and blue and cloudless.

"It's beautiful out here," Venya says. "I can see why you came."

"I figured Julia could work anywhere, and if she came awake maybe she'd like seeing this place again." He dabs mustard from Julia's cheek and she continues to chew her chicken breast obliviously. "This was the last vacation our family took together before Mom died."

Professor Mom killed herself when Julia was in grad school; Venya went with Julia to the funeral. Professor Dad checked out in a completely different way. He took a position in Spain, and, soon after, found a new wife. Everyone in the family, Venya thinks, has a talent for absence. Everyone except Kyle.

"What about you?" Kyle says. "Did you ever make a family? Two kids, cocker spaniel, house in the suburbs?"

"I have a son," she says. "He started college last year. His mom and I broke up a few years ago, but we all get along. He's a good kid."

"A son? That's great!" he says, meaning it. "It sounds like you've had a good life."

"Good enough. And what about you? Ever find someone?"

"Julia's the only woman in my life." He laughs, forcing it a little. "Well, I've had a few relationships. I'm just not very good at keeping them going, and with Julia . . . I stay pretty busy. Here, I want to show you something."

He went into the RV and came out with a fresh bottle of Canadian Mist and two glasses in the fingers of one hand, and a big three-ring binder

under his arm. "You remember this?" He sets down the bottle and glasses and shows her the binder cover: "HOW TO DO IT."

"My God," Venya says, and takes it from him.

"It's not the same cover, had to change that a couple of times. But some of the original stuff you put in is still there. Still accurate."

When Venya decided she had to leave, she gave Kyle a binder like this. Operating instructions for Julia. Names of doctors, prescription dosages, favorite foods, sleeping schedule, shoe and clothing sizes . . . everything, down to the kind of toothpaste Julia liked. The binder is much thicker now.

"It's all there," he says. "The trust fund accounts, computer passwords, insurance papers."

Venya isn't sure what to say. "You're a good brother."

"Yeah, well. I am my sister's keeper." He sets the binder at the end of the table.

They lapse into silence. Venya pushes the last of the baked beans around on her paper plate. Kyle drinks.

"You have something you want to say," Kyle says.

Venya exhales. "True." She takes the remaining glass and splashes a bit of the whisky into it. She swirls it around, inhaling the sharp scent, watching the liquid ride the sides of the glass. She's never particularly liked hard liquor.

"When she comes out of it," Venya begins. "Do you talk about how she's feeling?" He waits for her to explain. "You said the absences were growing longer. Eventually . . . You called it lock-in. She's got to think about that. Does she feel trapped?"

He smiles, tight-lipped. "I don't think so."

"Kyle, you can tell me."

"I would know," he says. "We've always understood each other. We don't have to talk about it." He sips from his glass. "When Julia comes back, all she wants to talk about is her work. Non-stop Q.M. She just starts scribbling, because she doesn't have much time before she goes away again. Even before she resigned from New Mexico I was helping her write up her papers—not just the layman stuff, the journal articles." He gestured toward the RV. "I should show you the stuff she's turning out now. She's dismantling Everett-Wheeler and the other interpretations. I can't follow the math anymore, but that's not important. The job now is to organize the notes and get it into the hands of people who can understand her. This is her chance to get into the history books, Venya. She *wants* to follow it."

"What if she follows it so far she can't find her way back?" she says. "What if she can't stop from disappearing for good?"

"I don't think she'd mind," he says. "In there, that's where her real life is. Everything out here is just . . . distraction."

"You don't know that," Venya says. "When we were together, she was afraid of getting lost. We talked about it. We didn't call it 'lock-in' then, but that's what she was afraid of."

"So?"

"So, I made her a promise."

He stares at her.

"I think that's why she called me, Kyle. Because she's getting close." Because she's afraid you won't be able to do what she needs.

He puts up his hands. His laugh is brittle. "Don't take my word for it, then. Ask her yourself."

Venya smoothes back a stray hair blowing across Julia's eyes. "I'll need some matches," she says.

Venya clears a length of the RV counter and sets out the baggie of grass and the rolling papers. A bong would be better—cooled smoke is best—but Venya didn't want to put one through airport security. It was nerve-racking enough just to pack the marijuana, rolled up and hidden in her tampon box.

She shakes out a little of the grass onto the paper. She hasn't rolled a joint in years, but motor memory guides her hands. In the end she spills only a little of the pot.

"This is your plan?" Kyle says. "Get my sister high?"

"It worked in college." Twenty-five, thirty years ago. Marijuana screwed with Julia's focus, derailed the train—if the concentration of THC was high enough. Venya's co-worker assured her that the pot was near-medical-grade, but there was no way to know if it would be enough.

Venya sits cross-legged on the floor of the vehicle, almost under the table. Kyle guides Julia until she's lying face up on the floor with her head on Venya's lap, staring at the ceiling. Kyle lights the joint for her, and Venya breathes with it to get it going.

"Pinch her nose," she says, then takes a long drag and holds the smoke in her mouth. She lifts Julia's head, and holding the glowing joint away from their bodies, bends to place her lips against Julia's. Venya exhales, a long sigh. Smoke eddies above Julia's mouth, then slowly drifts across her eyes. Julia blinks, but doesn't shift her focus from the ceiling.

"It may take awhile," Venya says. She draws on the joint again, thinking about the first time they kissed. Julia seemed so afraid, as if she didn't know how to live in her own body.

After a few minutes Venya's lower back and shoulders begin to ache from the awkward position. Even though she's trying not to inhale she feels light-headed. The pot is indeed strong, or else Venya is indeed old. She suspects both.

Julia never liked marijuana. Or any of the prescription drugs the doctors tried on her in the early days. None of them worked for very long once she developed a tolerance, most of them had uncomfortable side effects, and all of them, Julia said, made her stupid. She couldn't bear stupid.

The smoke alarm goes off. Venya jerks, and Kyle, laughing, reaches up to the RV's low ceiling. He pulls off the alarm's plastic cover and yanks out the battery.

Julia hasn't moved.

"I don't think this is working," Kyle says. The joint's already burned down half its length.

"Look, her eyes are closed," Venya says. She tugs one of Julia's ear lobes. "Come on now, Sleeping Beauty."

Julia opens her eyes. She looks up at Kyle, then turns her gaze to Venya. Her hand lifts and touches Venya's cheek.

Julia smiles. "My Princess Charming."

Kyle helps the two women to their feet. Julia laughs, coughs, then recovers, smiling. "We're both old women!"

"Fifty is the new seventy, Jay." But Julia's wrong, Venya thinks. Or half wrong. Julia awake seems as beautiful to her as when they first met.

Julia looks around at the cabin, at the stacks of paper in the slanting light. "I need to write some things down," she says quietly, then catches herself. "But not now. What time is it—seven? We can watch the sunset."

"If we leave now," Kyle says.

"Vee, you better roll another one of those before I go away again."

Kyle passes out flashlights for the way back, then leads them out of the campground. After a hundred yards or so they step off the park road and onto a well-traveled hiking trail. Julia smokes as they walk, putting the joint down by her side when they pass people coming back from the point to the campground. The trail runs across sandy ground, then over patches of slick rock where the trail is marked by small cairns.

Julia puts her arm in Venya's. "I'm so glad you came," she says.

"You called," Venya says simply. She doesn't know what she can say in Kyle's presence. Julia called her without telling her brother, without even telling him that she'd woken up while he slept. "Kyle says you're working on something important. Something about dismantling the many-worlds interpretation."

"You remember Everett?"

"A little. I proofread a lot of your papers, Jay."

"You kept correcting my semi-colons," Julia says. She takes a hit from the joint and grimaces. "It's not just Everett, and the Deutschian spin-offs of that. I'm also taking down Zurek's many-histories, and Albert's many-minds, and Bohm's pilot waves. The Copenhagen Interpretation already died with the failure of complementarity."

"You don't say," Venya says. In two seconds Julia's zoomed years beyond her reading. "And your idea is. . . ?"

"Wheeler-Feynman's absorber theory, but fully extended into QED." QED is quantum electrodynamics—Venya remembers that much—but she's never heard of the absorber theory. "With a few of my own twists," Julia adds.

She's animated, waving the lit joint like a sparkler. Venya takes it from her and squeezes it out. There are matches in her pocket if they need to relight it.

"There's no need for an observer to collapse the wave," Julia says. "No need for parallel universes sprouting out of control. The universe is not a growing thing, it's already complete. From the moment of the big bang, all the work has already been done. It's whole and seamless, going backward and forward in time. There's no 'now' and 'then.' *Everything's* now. Everything's happening at once. Look—"

Julia stoops to pick up a small rock, and scrapes an upside-down V on the sandy ground. "A particle going forward in time meets an anti-parti-

cle going forward in time." She scratches a minus sign on the left-hand segment and a plus sign on the other segment.

"Oh God, more Feynman diagrams," Kyle says.

Julia digs into the intersection of the two lines. "That's an electron colliding with a positron. They're destroyed, and emit two photons that fly off in opposite directions." She draws two lines extending from the intersection, making an X. "It doesn't matter which way time's arrow is pointing. We can read the diagram from any perspective and it's equally true. Read it from left to right and you can say that electron meets a photon and emits a photon and a positron. Or from the top, two photons collide and emit an electron and a positron. All are correct. All *happen*."

"Okay . . ." Venya says. She looks at Kyle, her expression saying, How do you put up with this stuff? She has no idea where Julia is going with this, but after hours with the absent version of the woman, it's a pleasure to be with a Julia so *present*.

"But it's equally true," Julia says, "to say that an electron strikes two photons and emits a positron that travels backward in time." Julia looks Venya in the eye to see if she's following. "Time's arrow doesn't matter. If the map is true, it's true for any point in time. It's a map of the world, for all space-time. The future is as set as the past, for everyone. The territory doesn't change."

"For particles, not people."

"What do you mean, not people? Schrödinger's Cat, Venya. The EPR paradox. People, and their choices, are already factored into the equation."

"But people have free will."

"That reminds me of a joke," Kyle says.

Julia tosses the rock away. "Free will just means that you don't know what's on the map. You don't create the future, it's already there, waiting for you like a Christmas present. All you have to do on Christmas morning is see what's inside."

"A Jehovah's Witness dies and goes to heaven," Kyle says.

"What?" Venya says.

"Ignore him," Julia says. "I do."

The trail runs through a narrow neck, perhaps thirty yards wide, with sky on either side of them. The park pamphlet said that cowboys would fence the narrows and corral wild horses out on the lookout. The legend is that one winter the cowboys left for home and forgot to take down the fence. Naming the point came easy after that.

The land widens again, but then the trail ends in sheer cliff. Julia gestures toward a nose of rock jutting into the air. "My favorite spot," she

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says. She walks onto it like a veteran high diver. Venya's stomach tightens to see her standing on that slender platform, sky above and below.

Suicide runs in the family, Venya thinks. Maybe she isn't here to help Julia kill herself, but witness it. Or help Kyle cope with it.

But then Julia sits down, and slides forward so that her legs hang over the edge. Venya cautiously follows Kyle onto the shelf. They sit down on either side of Julia with their flashlights between their thighs, letting their feet dangle over a thousand feet of empty air.

They face south, looking out toward hazy mountains fifty or sixty miles away. Between Dead Horse and the mountains are five thousand square miles of canyon country the park maps call Islands in the Sky. A good name. Venya looks down on an ocean of air, a stone basin walled by raked cliffs over two thousand feet high. The bottom of the basin is a vast labyrinth of stone: mile-deep chasms; sharp reefs and table-flat mesas; crenellated buttes like castles surrounded by invisible moats.

At the very bottom flows the only water visible in this stone country, the olive green coil of the Colorado. The river winds out of the south, aiming lazily for Dead Horse Point. Two miles before it reaches the point, the river abruptly goosenecks, bending 180 degrees around a butte shaped like the prow of a ship, and disappears again into the southern maze of canyons.

Venya thinks of those horses, dying of thirst within sight of the river.

"Wow," she says.

"Mmm hmm," Julia answers.

They sit in companionable silence. In the fading light the land seems to flex and shift. The cliffs to their right are already in twilight, but the eastern faces glow with deep reds and smoldering oranges. Shadows run down the cracks and seams, pooling two thousand feet below at the darkened feet of the cliffs.

"This Jehovah's Witness goes to heaven," Kyle says.

Julia sighs, and then starts chuckling to herself.

"But instead of the pearly gates, there's a fork in the road, and a sign pointing down each path. One sign says 'Believers in Predestination' and the other says 'Believers in Free Will.'" Julia shakes her head, and Venya wonders how many times she's heard this joke—and whether she heard it while awake, or as background chatter while she was thinking of something else.

"The guy's always believed in predestination, so he goes down that road, and eventually he comes to a huge wall and a big door with the word 'PREDESTINATION' written over the top. He knocks, and an angel opens the door and says, 'What brings you to my door, mortal?' And the guy says, 'Well, there were these two signs, and I chose the one that said predestination.' The angel says, 'You chose it? You can't come in here, Bub,' and slams the door. The guy's heartbroken. Finally he trudges back to the crossroads and goes down the other road. Eventually he comes to another giant wall and a door that says 'FREE WILL.' He knocks and another angel opens the door and says, 'Why did you come this way, mortal?' And the guy says, 'I had no choice!'"

"Slam," Julia says, and laughs.

Venya laughs with them, but she wonders at these two odd, grown children. Orphans, really. Maybe they like the joke because they share the certainty that the universe will screw them over. No—that it already has.

Venya scootches forward and leans out over her knees, staring down. A thousand feet below is a pink shelf perhaps two miles wide and perhaps another thousand feet above the river.

"That's the White Rim Trail," Kyle says. He means the pale thin track that runs along the shelf like an old surgical scar. "Jeep road from the uranium-fever days. I always meant to drive that. I've never even gotten down to the rim."

"There's always the quick way down," Venya says, and Kyle laughs. "One gust of wind."

"Stop it," Julia says.

Kyle says, "When we were here when I was a kid I used to scare myself by thinking of the rock snapping off under my feet, like in a Roadrunner cartoon. I'd hang there in the air for minute, then *thwip!* A little puff of dust where I hit."

"Bury you right there in your silhouette-shaped hole," Venya says.

"With a gravestone that says, 'Ouch!'"

"Stop it, both of you!" Julia says. She pushes back from the edge and her flashlight topples and starts to roll. Kyle snags it before it reaches the edge.

"Careful," he says.

Venya says, "Jay, what's the matter?"

"We should head back now," she says evenly.

Kyle doesn't answer.

"It's getting cold," Julia says.

"I'm fine," Kyle says. "I'd like to stay out here a while longer."

"Let me take her," Venya says to him, and realizes she's slipped back into talking about Julia as if she isn't there. She quickly adds, "Jay and I need to talk some more physics, right Jay?"

Kyle laughs. "Liar." He squeezes Venya's arm, a silent thanks. The man's been on duty for more than twenty years, Venya thinks. Walking Julia home is the least she can do. And she and Julia do need to talk: The light is fading, and the pot probably won't last much longer.

"Are you sure?" Julia says to Kyle.

"Of course. Here, take my jacket." He starts to untie the gray fleece from around his waist.

Julia walks behind him and squeezes his neck. "Always the good little brother." She bends and kisses the crown of his head.

Venya's forgotten how quickly darkness falls in the desert. The sun drops behind some far ridge and suddenly Venya can barely see Julia beside her.

Venya clicks on her flashlight and plays it over the trail. After a few minutes of walking she says, "You sounded scared when you called me, Jay."

Julia doesn't answer. For a moment Venya thinks she's disappeared

again, but then she makes a sound like a sob. "I'm so sorry, Vee. It wasn't fair to call you."

Venya wants to see her face, but resists the urge to lift the flashlight. "I promised to come back," Venya says. "If you ever got lost." So lost in her head that she'd never be able to tell anyone when she wanted out, when she wanted to end it. "You said you were afraid of not having a choice."

"That's not what I'm afraid of anymore," Julia says.

"What, then?"

Julia walks on in silence. She still hasn't turned on her flashlight. Venya feels for the lump of the joint in her jeans pocket. "You want me to light up?" she asks.

After a few seconds Julia says, "Sorry, I . . . When I woke up and saw we were at Dead Horse, I knew what he was thinking about. The last good time we had."

"He told me about that," Venya says. "The vacation before your mom died."

Another long silence. Venya thinks they're passing through the narrows, but it's hard to judge in the twilight. She thinks of the mustangs, made stupid by a simple barrier of crossed logs, unable to escape without someone to guide them.

Venya touches her arm, and Julia says, "The path out is the same as the path back. It's laid out like a map . . ."

"Stay with me, hon. No math now. Tell me why you called me."

"He's so tired," Julia says. "You can't see it—he's being Kyle for you. But you can't see him like I do. It's like time travel. Every time I come back, he seems to be aging so much faster."

"Julia?"

Julia stumbles against something on the trail and rights herself. "He couldn't tell me, of course. He knows how important the work is to me. But I was so afraid he'd leave me before you got here, and without him . . . I'm very close, Venya."

Venya stops but Julia keeps walking automatically, her voice growing softer. "The math is . . . the math is laid out like . . ."

Venya seizes her arm, jerks her to a halt. "Julia!"

She says nothing.

"Julia, I need you to snap out of it. *Listen* to me." She shines the flashlight in her face, but Julia's staring into nothing. No, not nothing. The map of the world.

Venya pushes down on her shoulders. "Sit here. Don't follow me. I'll be right back." Julia lowers to the ground, her knees up by her chin. "Good girl. I'll be right back."

Soon, Venya will find his flashlight on the shelf of rock, turned on and pointing into empty air. Sometime after that, when the park rangers and police have finished with their questions and she's signed the papers that Julia cannot, she'll find the binder that Kyle set out for her. She'll turn to the pages about meals, and make Julia her breakfast.

Now Venya turns and begins to jog back the way they came, the flashlight beam jumping from rock to bush to gnarled juniper. Behind her, Julia rises and begins to follow. ○

THE BRIDGE

Kathleen Ann Goonan

Kathleen Ann Goonan's latest novel, *In War Times* (Tor, May 2007), received starred reviews from *Publisher's Weekly*, *Kirkus*, and *Booklist*. It begins in WWII, continues through the sixties, and includes narratives written by her father, Thomas E. Goonan. He was in the 610th OBAM Battalion, which served in England and the Rhineland. Kathy has published about thirty short stories, many of them in *Asimov's*. She is also known for her nanotech novels, *Queen City Jazz*, *Mississippi Blues*, *Crescent City Rhapsody*, and *Light Music*. Nanotechnology also shows up in her hard-boiled mystery of "The Bridge." Although the story was originally published as "De l'autre côté du pont" in *Détectives de l'Impossible*, *J'ai lu* Millénaires, May 2002, this is its first appearance in English. You can find out more about Kathy's fiction at www.goonan.com.

I took the case because I was out of money. It was not the sort of case a self-respecting private eye wants.

But I was desperate.

In these times, hardly anyone needs a private detective. After all, these are the days of miracle and wonder, when one's own true love, even one's simulacrum, so to speak, can be spun in a cocoon over on Wilson Boulevard by Nelson's Artificial Person (fully licensed by whatever is left of the U.S. Government), and inculcated with any kind of physical and emotional frillery one fancies. Or thinks that one fancies.

Nanotechnology is, of course, a buzzword for "we can do anything." I don't understand exactly how an artificial person is grown, but each is a flesh and bone blank (many types and sizes in the catalogues), ready for final DNA tweaking and memory infusion. After the rash of memory-related Nobel prizes, competing memory preservation and replication tech-

niques flooded the market, leading to the melding of many technologies. It was but a short jump to a development that has been both vaunted and abhorred: artificial people.

We are at a very odd place, you see. We are obviously "creating life," and who could argue with that? Yet, people certainly have. Vast phalanxes of lawyers on both sides of the issues have made a lot of money lately, but the most they seem to be able to do is engage in skirmishes about some minute aspect of the various processes presently in use.

It is against the law to kill these beings, should they disappoint, although the penalties for doing so are minimal. It was this sort of instance that I was called upon to investigate.

I was hired by the artificial person's sister.

She knocked on my office-door window on a Friday evening just after I had poured myself a Scotch. It was mid-December, gloomy at four-thirty PM, and that was evening enough to justify the first drink of the day. A light snow was falling, and the flakes outside my third-floor window glowed green, gold, and blue each time the Harry's Bar sign just below changed color.

My office is in Rosslyn, Virginia, a few blocks from the Potomac River. Across Key Bridge is whatever was left of Washington, D.C. It had been utterly changed by a nanotech surge five years earlier.

We unchanged huddle here across the river. Many of the buildings here are altered, of course; new forms of communication are in full swing: giant beelike creatures fill the sky during the day, moving information here and there. Broadcast communication works only sporadically.

Almost everything else has changed.

But for me, on that day, nothing had changed. I had made sure of that. In fact, most days I entertained thoughts of cashing out completely, but even that seemed like too much trouble.

The woman cupped her hands to the glass in an attempt to see inside my dark office.

Illuminated by the dim bulb in the hallway, her face was pale, her eyes large and dark. Her hair was black. She wore a small, blue felt hat perched atop a sophisticated hairdo, with a net that swept across her eyes without hiding them. Her blue wool suit fit tightly; when she stepped back from the door, and looked doubtfully up and down the hall, I could see that her skirt was long and tight, with a little fillip at the bottom that gave her legs just enough room to take mincing steps. I knew that she wore high heels because I had heard them as she approached down the hall.

I decided that I wanted to see what they looked like.

I pushed my rumpled self up from my rumpled couch, tucked in my shirt, straightened my slightly stained tie. I am middle-aged, unable to afford—but not wanting, either—so many of the bionan enhancements at large in the world today. My looks are plain—a slightly heavy face, whiskers that grow too quickly, small blue eyes, a receding hairline, and a depressive personality that dulls whatever sparkle my mother might have seen in me. Like most private eyes, I used to be a police detective. For many years, I was quite successful. Most days, now, I sat in my office and wondered what I could do to make a living. I'd already put in a notice

to the landlord that I was leaving at the end of the year. My office was cheap, but not cheap enough.

"Come in, the door's open," I called, as she turned to leave.

She looked startled, but turned the knob.

She reminded me of a giraffe—awkward in her tallness, her head bent forward slightly in a way that was calculated to be charming, diffident. Her brief smile did not reach her eyes.

"Hello. I'm looking for—a Mr. Mike Jones?" She looked around, clearly hoping to find a competent-looking detective—or at least a competent-looking receptionist—somewhere in the room.

"That's me. Come in." The shoes were black, open-toed slingbacks, strikingly inappropriate in this weather. She either had no sense, or couldn't afford to buy new shoes—and therefore, couldn't afford me.

I hoped that she had no sense.

"Come into my office." I was torn, for a moment, between professionalism and need as I walked past the half-filled glass of Scotch still on the end table.

Need won. I picked it up. "I was almost ready to close. Can I pour you a drink?"

"No," she said, with distaste and a bit of doubt.

I went to my desk and turned on my single desk lamp. She settled into one of the hard wooden chairs in front of my desk, and I sat behind it. She set her small black bag on my desk, which I took as a good sign. She did not remove her tight, gray leather gloves before folding her hands in her lap.

"How can I help you?"

"I saw your name on a card downstairs . . ."

"Ah. You frequent Harry's?" I tried to keep several cards shoved under the glass top of the bar.

"No," she said, decisively, wrinkling her nose. "I just needed . . . some hot coffee, this afternoon, and I saw your card there."

No one with any money to speak of would go into Harry's bar on a snowy afternoon for hot coffee. There is a boutique coffeehouse next door. The coffee is three dollars a pop, but it hasn't sat on the burner all day.

There was a street march just a few weeks ago about the little war we have going on here, the war between the future and the past, so it was possible that she was from the future, trying to live in what was left of the past, for reasons which might spell money for me. As one of those who is quite fond of the past, I'd clung to the sinking ship for far too long. I didn't like the view over there on the future side.

Or maybe I was just a sad old loser too stupid to take a chance.

I cradled the Scotch between both hands. "How can I help you?"

"I need you to get my mother and sister out of copyright. I want the rights to them."

"They are . . . some kind of program?"

She nodded, a tragic look in her dark eyes. Her nose was slightly crooked, which gave her a charming air of imperfection.

"I think that you need a lawyer."

She shook her head. "No. They can't do anything for me. I went to one and she told me what needs to happen."

"Which is?"

"They need to be out in the world, living on their own, without being formally accused of being artificial, for five years."

"That's a long time."

"I want them now!"

"Where are they?"

"They were killed in a car crash four years ago. But I'm getting ahead of myself. Many years ago, my father had programs of us made so that we could be duplicated."

"That would have been illegal."

"At that time, yes."

"It still is. But it was done fairly often, it seems."

"Well. Anyway, it seems that my father has fallen in love with another woman. I attend the University of Virginia. It's in Charlottesville."

"I know." It was about two hours away, a prestigious university. "And?"

"I came home for a visit last week, and found that my mother and sister were . . ." She bowed her head, covered her face with her gloved hands, and began to weep. Her thin shoulders shook. "He had them—*disassembled*."

"What does that mean—*disassembled*?"

Did a brief look of satisfaction cross her face? She looked up again. "It means that their minds—their personalities—were erased, using a disassembly enzyme. At least—I mean, I'm not sure, exactly, how it works . . ." She shook her head in apparent disbelief.

"What happened?"

"I surprised him. The process wasn't finished, and there were still loose ends he had to clean up. I had a key, of course, and just came in, a few days earlier than expected. I called out, got no answer, went looking for someone. A strange woman came out of the living room and said, 'Who are you?' My father came from the kitchen and she yelled 'Frank, I thought you had taken care of this.'"

"Then I looked over and saw my mother and my sister sitting on the couch. Their hands were folded in their laps and they were staring straight ahead. They didn't recognize me. They didn't even notice me. I ran over to them, shook them, screamed at them, cried. 'What's wrong?' I kept saying over and over again. And after a minute, it dawned on me. Both of them, with that vacant look! I turned to my father and yelled at him to help, to stop it, to call a doctor. Instead, he grabbed my shoulders, tightly. His face looked different. Mean; angry. I tried to pull away but he wouldn't let me go. I struggled and got loose. Ran out the door, down the street. He followed but couldn't catch me."

I sipped warm Scotch and surmised that she had not been wearing her high heels at that time. "I don't mean to upset you, but you must explain to me how disassembly happens."

"I'm not sure. I always thought it happened to . . . other people. Artificial people. Not me. Not my mother, my sister. Why would I think of it in relation to us? We are—we were—real! I never paid any attention to the news reports or controversy or anything. Certainly not any technical details."

I lighted a cigarette. "Certainly creating artificial people is beyond the means of most people."

"My father is very wealthy. He's a well-known lawyer. Frank Quick. We live . . . I mean, I used to live, out in Great Falls. Here's his address." She slid a folded piece of paper across my desk.

I let it sit there. "I assume that you went to the police."

"Oh, yes! There was nothing they could do. That was when I found out, you see, that I was a duplicate. It was quite a shock. I realized that he was planning to have me disassembled as well. Just get rid of the old family and have a new one!"

"You didn't know before that you are artificial?"

"No. I didn't know that we were killed in this car wreck. We were all in the hospital with various problems for quite some time afterwards. I had a broken neck. My mother had a ruptured spleen, and my sister suffered brain damage. My father could afford the most progressive therapies available. I thought that we had been *healed*, not *re-created*."

"Was he in this automobile accident?"

"He was the driver."

"Was he injured?"

"I believe he had some minor injuries."

"Which hospital?"

I thought she hesitated before answering. "Arlington General."

"It seems odd that he would go to such lengths to preserve all of you, and then suddenly get rid of you."

She frowned. "I'm not sure what's wrong with him. Some disease of the mind that he refuses to have diagnosed, I'm sure. His younger self would never have done such a thing. He loved us. He loved us so much that he went to great expense! But I suppose that . . . maybe something was missing in us, since we were not real. . . ." She looked at the floor and tears welled in her eyes and slowly moved down her thin, fine-boned face.

I pushed a box of tissue over toward her.

"But no one has challenged your right to exist. Correct?"

"I believe that he will, if he can't disassemble me quietly. He doesn't know where I am. I have no money right now; I'm sorry. I'm afraid that he might find me if I try and access any of my accounts. I need help."

Just my luck. "What do you want me to do?"

She leaned forward. Her eyes gleamed in the light of the neon sign. "I want my mother back. And my sister. Their copies are in his safe. The updated information that can re-create them, right to the moment of their disassembly. I've drawn a map of the house on that paper that shows where the safe is. The house is alarmed; I included the code for you."

"You are asking me to burgle a house, not solve a crime. Why can't you do this yourself?"

"I told you." Her voice rose. "He wants to . . . do away with me. I fear for my life. I can't go back there. I'm sure he's trying to find me." She blinked a few times, obviously trying to calm down. She succeeded, and continued in her previous, reasoned tone of voice. "I'm working on getting access to my accounts without giving away my location. I can have some money for you in a day or two."

"My fees are one hundred dollars an hour, plus expenses. Travel, anything that I need to pay for. I require a retainer of a thousand dollars."

"I will have to owe you."

What else did I have to do?

On the other hand, my soul was just about the only thing I still owned and it seemed a good thing to have.

She must have noticed my indecision.

"There is one more thing," she said, wiping her eyes with a tissue. "We might be real."

"You mean that he might not really have re-created you after the accident."

"Yes."

"Then it would be murder."

"Yes."

"So it seems that you are not entirely sure about whether they were artificial or real."

She hesitated a second. "No."

I sighed. It was something. "I would be glad to investigate the possible murder of your mother and your sister, Ms. Quick, for the aforementioned fees. Do you have any photographs of them?"

"Ah . . . yes, but . . . why would you need them?" She looked confused and a bit irritated.

An interesting reaction. Most people want to provide the detective with all the information they have, no matter how irrelevant. "For my investigation."

A tiny frown creased her forehead. She dug into her purse, took out a wallet, and tossed two photos onto my desk.

"And your father too?"

"Oh. Of course. Here. You'll do it, then?"

"I told you: I will investigate the facts surrounding these possible murders."

"But the copies?"

"If your mother and sister are indeed artificial persons, and their copies are in this safe, it is possible that the copies might fall into my hands during the course of my investigations."

She did not look entirely satisfied, but nodded once. "All right."

The next morning, after I rose from my couch and washed in the small bathroom in my office, I began to work in spite of myself. Old habits die hard.

I hadn't told her, and she hadn't asked. That was the strange part.

I was in a building that had not been infused with receptor capabilities. In pre-conversion language, it had not been wired.

But what was happening now—here, everywhere—was different from being wired. It was internal.

Communications—regular, old communications like the way they were back in the old days—were gone. Because of the electromagnetic interference. Telephones—and, therefore, the good old Internet—didn't work. Broadcasting didn't work. No one knew what was causing this, but it was like a long solar flare that might never end.

Arlington was being Converted to new biological ways of doing things. Interstices filled with benign bacteria capable of carrying an infinite

amount of information ran up the sides of converted buildings. There was a port in every room, where a clear, semi-permeable membrane gave access to those who were converted, through the wonders of genetic engineering, and could send and receive information. They call it meta-pheromonal communication.

The owner of the Zephyr Building, in which I have my office, is a tightwad. When it became clear that he was never going to convert the building, most tenants moved out.

Julia Quick either did not know or did not mind that both the building and, by inference, myself, had not stepped into the future.

Or maybe she did, and, finding it to her advantage, didn't care. It wouldn't take much asking to find out about me. I was a bit of a local joke.

Outside, snow fell in great sheets. I turned my collar up and walked over to the morgue. It was six blocks but I needed the exercise and could not afford the Metro. I was still not sure what was compelling me to do this work. Not money, not yet. Ms. Julia Quick had disappeared last night after pressing my hands gratefully, her hands still in her expensive gray gloves, then clicking her way down the hall.

It took more than half an hour for them to believe my license, since I don't have receptors. The woman behind the counter was astounded. She kept pulling other clerks over to gaze at my backward face. "Go ahead, touch him! There's nothing there!"

"That's because it's all here," I told her, pointing to my license on the counter.

She narrowed her eyes at me. "That's just a piece of paper. You could say anything on a piece of paper."

"So DNA can't lie, right? Listen," I said, getting hot. "The right hacker could slip in a new identity code in three minutes."

"There's no need to be rude. You may put that away."

In a moment she slid a sheet of what looked like ordinary paper, but was not, across the counter. I took it and hurried out the front door. Cold wet snow still fell. I hiked across a courtyard, went down an open stairway where the wind blew an empty paper cup to and fro between concrete confines, and opened the familiar back door to the morgue.

Dr. Frisco had been there all night and I caught her just as she was leaving. She was consequently quite short with me. It was clear that she wanted to get home and get some sleep.

"Dr. Frisco?" I stepped in front of her as she strode down the hall, her white coat billowing behind her.

She glared at me. "What?"

"I need to ask some questions."

"Who are you?" Her finger poised. The pad of her index finger was pale blue.

I dug out my license. She glanced at it. "No receptors?"

"No."

"Your religion or something?"

"No."

"Never mind. I remember you now. Private eye. Haven't seen you in a while. What's your question?"

"Do you recall seeing these bodies here?" I showed her the photos that Julia had left with me.

"No. Should I?" She looked more closely at the information on the sheet I handed her. "Four years ago? Are you kidding?"

"You signed their death certificates, here."

She looked again; touched a circle at the bottom. "That's not my signature."

"Thanks. The other two?"

She shook her head, frowning. "No, these are all . . . forgeries. But you got them . . ." she touched the first one again. "You just got them over at registry."

"So these people didn't die?"

She looked at me impatiently. "You know as well as I do that all I'm saying is that these documents are fake. Some hacker has been in the system." She sighed. "Well, it's nothing new. I told them they were rushing into this too fast. Look, is that all?"

"Thanks."

Julia returned that afternoon, still wearing the blue suit, but now wrapped in a dark wool cape with a hood.

I was glad that she showed up. I felt as if my morning had been a waste of time and I half-thought that I would never see her again, that she had been visited upon me by the gods of futility, who seemed to have made themselves comfortable in just about every area of my life. First the marriage, then my business, now the world . . .

On the other hand, she had provided me with something to be curious about. Something to make me want to live another day, just to see what happened.

She settled into the chair and again refused my offer of a drink.

I sipped carefully today. It was my last ounce and I was glad not to have to split it. My breakfast and lunch had been donuts.

"Did you get the copies?" she asked.

"Not yet."

"What have you done today?" she asked, her voice sharp.

"Not much. Tell me about the automobile accident."

"I don't remember it. We never discussed it. It was only when I found them . . . like that . . . that I started to investigate and discovered that we were all copies."

"Then tell me about this process. How does one's personality—one's memories, everything—become pure information?"

"I don't know, really. I only know that it can be done, and that it is being done all the time now. The information can be imbedded in various mediums."

She did recall being "read," when she was eleven years old. Her face softened and her eyelids lowered as she spoke in a low, singsong voice. "We drove into rural Virginia, toward the mountains. It was a cloudy fall day. My sister and I played games in the back seat."

Her hooded cape was soaked, so I knew that she had walked and not taken the Metro; the entrance was only steps from the building. But walked from where? I let her keep talking.

"When we passed through Charlottesville, my father said that he had met the doctor who would be working with us at the University, and that he was very good. The highway kept going uphill and first it was foggy and then it was just cold and drizzly and we could hardly see beyond the car. We got off the highway at the top of the mountain and turned left."

"You turned left?" I raised my eyebrows.

She scowled briefly. I probably wouldn't have seen it save that the bar sign changed from red to bright white in that instant. She dropped her eyelids and continued. "Oh, yes. I remember very well. I'm good at directions. We went underneath a wrought-iron arch that said Swannanoa Life Extension Institute. It was an old stone place, kind of like a castle."

"The doctor was a big man. He had a beard. He seemed very nice. He wore a white coat and after the secretary had seated us and given us apple cider and, I think, my parents wine—there were oriental rugs on the floor and some classical music playing very softly—he and my parents went away. The secretary took us to another room where we played Go. It started snowing."

"What was the name of this doctor?"

She continued in her dreamy, semi-hypnotized tone, "Doctor White." Then her eyes widened for a fraction of a second and she swallowed. "I think." She looked out the window. "No. It was . . . Green. Or . . . was it Elliott? I don't remember. . ."

"How long did it take?"

She answered eagerly. She seemed very happy to change the subject. "I don't know. You dream a lot. But it's not the same as regular sleep dreaming. Images race through your head, but they are very intense, very real."

I'd read that they used a combination of powerful psychotropic drugs and hypnotism. But I'm no scientist. I can't begin to understand how they can replicate identity. It would seem impossible. And people have complained that it doesn't really work very well, the people who have had this done.

"What are you majoring in?" I asked.

She stared at me for a split second, then said, "Medicine, Mr. Jones. I am a second-year medical student. Although I don't see what my personal life has to do with anything."

"I realize that you have access to very little money, but at this point I will have to begin charging an hourly rate plus expenses. Today I spent four hours—"

"Four hours! What did you do?"

"I spoke to Dr. Frisco at the morgue."

She became agitated. "The morgue! What were you doing there? All you need to do, Mr. Jones, is get the copies! I have given you the map; you know where it is in his bedroom; you can watch to see when he leaves the house! However you do such things!"

"I am the detective here, Ms. Quick." I watched her face carefully. "I understand that you want and need documentation of the truth of the matter here, and that—"

She leaned forward in her chair abruptly. Her face was twisted. "I just want my sister and mother," she hissed. "Get me the copies and I will pay you all the money that you could possibly want."

"So you don't really want to free them from the legal thrall of being merely a copy. Or even, it seems, re-create them."

"That's not true! Of course it isn't! But this is the first step."

"Tell me the truth. Why is it that you want these copies?"

"To prove—" she took a breath and looked out the window for a second before continuing. She cleared her throat. "To prove that my father committed this crime."

"How? If what is in the safe is simply their original copies—"

She shook her head. "My sister and my mother had a system which was constantly updated. The information is embedded in the eye, which is removable and which does not degrade. When their copies are re-infused into a body, the information will be there."

"Which of your eyes is it in?"

She blinked, staring at me once again. The light was dim, of course, but both looked perfectly normal to me. But then, I supposed, they would.

She stood. "You have all the information you need. I'm working on getting the money. I'll be back with it tomorrow." Her voice held an edge of hostility. She left in a hurry.

I slipped on my coat, waited for a moment, then followed her.

She walked downhill, towards Key Bridge.

She stepped onto the bridge and began to walk.

I could not believe it. No one crossed that bridge.

She walked casually; quickly; not as one who was afraid. Her hands were in her pockets and her head was up.

She disappeared into the fog.

I felt a stab of fear for her.

From this side, the city sometimes looked the same. The obelisk of the Washington Monument gleamed whitely in the sun, along with the Capitol dome. It appeared that people were inside, going about some kind of business. But often light was refracted from the city in strange ways, blurring what was visible. Binoculars sometimes revealed blocks where the city was older, where buildings torn down a hundred years ago had reappeared. Sometimes, it was claimed, famous Washingtonians like Duke Ellington or various dead presidents were spotted.

A team of scientists went in, at the beginning, wearing what they believed were impermeable suits. They never emerged. Other people disappeared from time to time as well. Crossing the bridge was widely regarded as being the same as committing suicide. Only the young, the curious, and the hopeless went inside. And the greedy. I had read an account of a man who had gone over in order to cart out antiques, only to have them disintegrate once they were out on the bridge, out of the fog of the city.

Some claimed that everything inside was a kind of holographic reproduction. Others thought that the nanotech surge that had overtaken the city that strange and terrible night had not simply replicated, perfectly, all that was there before, but had infused it with a mass mind that outsiders simply could not understand.

I did not follow Julia.

But I watched the shifting, dreamy lights of Georgetown through the fog for a long time before turning back.

* * *

The public transit to Charlottesville was pleasant, and free. I went through the usual rigmarole at the registrar's office with my license and so on, but eventually they gave the information I wanted.

I had little trouble locating Dr. White's scheduled lecture. The hall was full of people who looked extremely young, far too young to be medical students.

It was Dr. White, of course, in all probability, who had done the work on Julia and her family. The truth had popped out in Julia's first surprised response to my question. Dr. White was a famous man. I'd read more than one article about him in the *Washington Post*, still published on our side of the river. He had pioneered—was still pioneering—the brave new world of eternal life. I had read that the developmental costs were astoundingly expensive.

He was a big man, and he did have a beard.

I was not sure that he was nice.

The course was Nanobiology 6000. The auditorium contained about a hundred students. What Julia had told me was true; she was a medical student, but her schedule did not call for her attendance at this particular lecture.

Maybe she had heard it before.

The lecture was about the latest artificial livers and how they worked. I didn't understand much of it. I waited until the flurry of students around the doctor died down and then stepped up to him and introduced myself.

"I'm trying to find out about some work you did some years ago. At a place called Swannanoa."

His eyes were pale blue and cold. "I've heard of Swannanoa, of course. But I'm not connected with them at all. Never have been. Now, if you'll excuse me—"

"I believe that Julia Quick is your student."

He looked at me more intently. "I have a lot of students, as you can see."

"Perhaps you've heard of her father, Frank Quick."

"No. Is that all?"

"I think that will do." I left him standing there, looking after me. Rather disturbed, I hoped.

It's often the most effective thing to do.

I spent most of the ride back to town thinking about how irritated I was with Ms. Julia Quick.

I spent the rest of the ride thinking about how irritated I was with myself.

I got to the library an hour before closing time, chagrined at my slowness. But the city was iced down and difficult to navigate. Freezing rain had blown into the crevices of the library's door, and tiny crystals peppered my face as I pulled open the door.

The librarian, a middle-aged woman, looked up, startled, when I walked in the door. "I was just getting ready to leave. The storm has kept everyone home."

"Do me a favor, please, and stay until closing time."

"I suppose that I must."

"I'm going to need some help. I need temporary receptors."

"What? I didn't think that there was anyone so backwards as to not have them!" She paused for a moment. "Sorry. That was rude."

"They are free, aren't they?"

"Yes. Provided by Beetech, Incorporated."

"Because they are sure that they'll sell me the real thing."

She leveled a look at me. "They will."

I looked around at the smooth, bookless surfaces of the library. "I hardly believed it, but it's true. No books."

"Oh, there are books! Millions more than we ever had when they were made of paper and cloth."

"I'm actually looking for several things."

"We'll get you set up first." She glanced at the clock. "That should take fifteen minutes."

"And it will wear off?"

"Your ability to comprehend information metapheromically will, unfortunately, last only twelve hours."

"Is it really that precise?"

Her voice was stern. "Of course. It is completely biological. Nothing is more precise than biochemistry."

"Let's go, then."

She opened a package and pressed a strip of something sticky to the skin on the back of my hand. In the package was also a sugar-cube-sized black object, onto which she pressed the strip. It made no sound; it did not flash; it was simply a black cube.

After a moment the cube turned white.

"Eat it," she said.

"Nothing happened," I said, after it dissolved in my mouth, tasting not unlike a sugar cube.

"Give it a minute." She went back to her desk and busied herself with some chores, during which time several small, pale green ovals formed on both of my palms.

I called to her. "I think it's ready." I looked at my hands with some trepidation. What had I done?

She hurried over. "Orientation." She handed me a pair of gloves. "Please stay seated for the next few minutes."

I could hardly have budged.

It was like an intense, sudden acceleration. Surprising, powerful music suffused my being in sharp shards so sweet they brought tears to my eyes. Sometimes it slowed to a flow of voices murmuring and I could even catch a word or two. Then it went into my brain and showed me all my memories and I was surprised at both their richness and their paucity, for I had lived only fifty years and this intelligence against which I was now measured was all of humanity's collective, written memories.

After I could see my surroundings again, she returned, removed the gloves, and set a box of tissues next to me on a low table. I took one and wiped my face and blew my nose. The eyes of the pale, stern librarian were no longer pedestrian, but instead were infused with wisdom and the essence of agape.

"You see?" she asked, in a voice so rich and melodious that I had to wipe my eyes again. My senses were immensely augmented, so much so that it was almost too much to bear.

At least it was only temporary.

"Now why did you come?"

"I need to learn about the process of making artificial people. And I need to access a police database."

She seemed disappointed. The requests were so mundane. But she leaned forward and tapped the table in front of me several times, glanced at the clock again. "Usually we just leave people to explore, but I can get you into that information immediately. You understand that without permanent receptors the information you access may not lodge with you for long afterwards, and certainly will lack its initial sharpness. The whole package changes the chemistries of memory."

"Do you get a commission?"

She smiled. The surface before me changed from hard to gel-like. She directed me to place my hands, now covered with small green ovals, onto this interface. "Perhaps you know, but—"

"I've studiously avoided knowing much about this at all."

"All right. Inside this interface are bacteria. Their DNA is capable of carrying . . . a lot of information. This information will be transferred to you in a form of chemical communication based on pheromones, artificially augmented so that they are now called metapheromones. These metapheromones will go directly to your brain and you will know what you want to know."

"But I won't remember?"

"I can impregnate your slate with the information."

"I don't have a slate."

She sighed, went to her desk, and returned with a rolled-up sheet of something that felt stiff and somewhat like plastic. "Smooth this onto the desktop. That's right. Anywhere. Okay, it has picked up your signature by touch. It contains about three thousand layers and each layer is a sheet of molecules that are light or dark and will configure themselves to show you a printed page."

"And it will work even after this wears off?"

"When it's rolled up, just snap it against a hard surface and it will activate."

"All free."

"This is nothing," she said. "Just a taste. You'll want to pay for the rest. Now tell me what you need."

I learned that most of the eye systems had backups. The artificial persons who had them—and they were the most advanced—slept in cocoon-like slings that lifted information from them through many interfaces, so that the full, complex flavor of consciousness could be most fully transferred. This information was sent to the backup, wherever it was kept.

Whomever Julia Quick was after—and I was no longer sure who that might be—was in Frank Quick's home safe.

I found the Quick accident in the police report. Julie's mother and sister were indeed seriously injured. She and her father were not.

Probing of the hospital records revealed that the entire family had been taken away by ambulance and released into the care of their physician, Dr. White.

But getting this information was the least of what happened to me while I was there.

I walked out into the cold evening an hour later. Everything was sharp; tightly focused; powerful. I felt as if previously I had not been alive.

No wonder people like Julia White could treat people like me with such arrogance. She believed me to be a dolt, the perfect facilitator.

She had nearly been right.

When I returned to my office, she was pacing back and forth in front of the door. She whirled and confronted me. "Where have you been?"

"Out." I unlocked the door with deliberate slowness.

She followed me inside. "Well? Do you have the copies?"

"No. I wish that I could offer you a drink, but—"

She shouted, "All I need you for is a simple thing. A very simple thing! You are astoundingly incompetent. You're . . . you're fired!"

Then she rushed out the door, crying.

I waited until she was safely into the elevator, then took the stairs.

She hurried down the wet, gray street, bright with evening lights and falling snow.

She did not look back once. As before, she did not pause when she reached Key Bridge. She wrapped her cloak more closely to herself as she walked, head down as if she were thinking hard, into the foggy grayness of what was once Georgetown.

I pulled my hat brim low. I looked around.

But this part of the Virginia side of the bridge, Rosslyn, was deserted. I took a deep breath, then followed Julie Quick across the bridge. The river roared beneath me. Ice, white in the glare of lights from the Virginia side, fringed gigantic rocks below. I was between two worlds, vulnerable.

And terrifically inclined to simply jump off the bridge and be borne away into the past forever. I forced myself to take one step after the other, holding tight to the railing, and not to keep from falling. I realized that this was why I had avoided the bridge, high places, owning a vehicle that I could drive into a tree.

The change started in the hand with which I gripped the cold railing of the bridge. I could hear nothing but the surge of the river beneath, a sweet, fresh roar. I breathed in the damp fog, searched in vain for any sign of life ahead.

It was as if my hand were asleep, then sharp, unbearable prickles infused my entire body.

I think that there was a moment of complete darkness before I was changed over.

I clung to the railing, dizzy. I took a few breaths of new air. I was afraid, and wondered if I would now die. It hadn't seemed to matter at all when I stepped onto the bridge.

Now I wanted, quite terribly, to live.

I walked forward, with a brisk, strong step. And then I ran.

On the other side of the bridge, fog-enveloped streetlights gently silvered the night. M Street was lively with people. It was the dinner hour. Restaurants and shops were lit against winter darkness.

I hurried along, wondering how long the event on the bridge had taken, and wondering what had happened to me.

I did not see her.

And then—

I dashed across the street and into a doorway. It was her, in the stairway, walking up a narrow flight of stairs.

"Julia!"

She turned slightly, saw me, and continued her climb.

"Julia, wait!"

She began to run, tripping up the stairs on those silly high heels. She stumbled and I grabbed her hand and caught her. She turned her head and looked at me.

There was no recognition in her eyes.

But my hand held her bare hand.

A jolt of pain and anguish flowed through me, then a barrage of emotions. Guilt, I recognized. Regret, yes. But the astonishment and the anger were as distinguishable from my own emotional makeup as if I were looking at two different colors, or hearing a saxophone and a violin. I was assaulted by images—terrible, chaotic, unmistakable.

I saw murder.

"Who are you?" She jerked her hand back and stood, smoothing her skirt and picking up her hat, which had fallen.

I stared at her. "You don't remember?" But it seemed quite certain. She did not. "I am Mike Jones. A private investigator. You hired me to recover your mother and your sister. You say that your father murdered them, perhaps."

For a moment her eyes softened. She blinked a few times. Looked downward. Looked back at me. "Who did you say you are, again?"

Then a door slammed above us. I heard footsteps.

"Julia! Are you all right? I hoped you would return here. Someone came to the university—"

I recognized the voice.

It was Dr. White.

His footsteps continued down the stairs. He stopped when he saw me. "What are you doing here?" he demanded.

"Julia—"

"Julia is unwell. I am her doctor."

"You said you didn't know her."

"This is an issue of patient confidentiality. I insist that you leave her, immediately. She needs treatment . . ." he glanced down at her hands. "Julia! Where are your gloves?"

"Oh." Her hand flew to her mouth. "I took them off when I came in the door. I was . . . somewhere . . . I don't remember . . . surely I didn't cross the river?" She looked at Dr. White beseechingly.

Dr. White advanced toward me with a certain resolve.

I rushed down the stairwell and out onto the street. Crossing it, I ducked into a bar and watched through the window from behind some blinds.

Dr. White stepped out onto the street, looked up and down. He stared for a long time in the direction of the bridge. Then he went back inside and the door shut behind him.

My old self would have returned immediately to Virginia. To the past.

But it was difficult to even think about doing so. Everything here was wonderful; perfect. I realized that people did not return to the other side simply because they did not want to.

A jazz pianist played quietly. I took a seat at the bar and fleetingly wished for a drink and some of the crab soup that I saw on the menu.

The bartender brought me a very fine Scotch and a bowl of crab soup. When I asked him how he knew what I wanted, he pointed to the place where my hand had rested on the bar. Bright print on its surface, upside down, showed my unvoiced desire. "But I can't pay."

He looked puzzled. "You already have."

I ate my soup, and drank, awash in a new, sharp, glowing feeling. A rebirth of mind. Of soul. I was young again, too, and here in Georgetown with my wife, Marlene, soon after we were married, when we were both so happy with each other and with life.

I hadn't seen her in many years.

Something about being here, in this place, something that happened on the bridge, had resolved that dark pain, that feeling of not being good enough. Marlene was finally swept from me. She had been swept from me by Scotch before, though, and I was suspicious that this might not last any longer than the effects of the Scotch.

But somehow, I knew that I was fundamentally changed by something I would probably never understand. I was changed by some deep newness in the world. A newness produced by humans. Which I had been given, free, at the library: a process that opened biochemical doorways and allowed my transformation on the bridge.

There seemed to be no reason to ever leave this side of the bridge.

Except that I recalled Julia's images with great clarity.

Her memories had cascaded into me in that brief contact.

I took out the slate that the librarian had given me and looked at it for a moment, wondering what to do with it.

The bartender was there, suddenly, and took it from my hand and unrolled it. He smoothed it onto the top of the bar. "That's how," he said.

"But—"

"You've only been in here less than an hour. Don't worry. We'll all help you. The way you use this—you just put your hand there and download whatever it is you want to keep. One way to do it—look. Put your hand there. Fine. Now just touch what you want to do. Here's the menu."

"I learned something—from another person, just now—through touching her hand."

"Fine. That's how we communicate. So just touch this download command. Do you know her name?"

"Julia."

"Tell it Julia—that's right, it is trained to your voice. That's the file-name. Now put your hand there and go."

I looked at him once more, with trepidation.

He smiled. "The brain is quite amazing. Don't worry. It works. Gotta go." He hurried to another customer.

In the quiet chat of the bar, Julie's memories poured into the slate. Visual memories. Memories which were in what was probably her internalized voice, the way it sounded to her.

It took a long time to sort them out. In the process, I realized that she was somewhat crazy, filled with mental and emotional barriers. Some of them were natural.

And some of them had been installed by Dr. White.

Julia had been a child when she first came into contact with Dr. White.

She had been "read" in Swannannoa, as she had told me. And it was there, in that temporal stratum, that Dr. White's voice, kind and fatherly, had implanted her loyalty to him. Her eyes had fluttered open at that point, and she saw him attach a patch to her arm—a patch that no doubt infused her with a more precise form of chemical compliance. The librarian had told me that biochemistry was very precise.

Perhaps his methods of implanting Julia's future slavery were clumsy; I don't know. But they seemed to have worked. He had probably used them on Frank Quick, too, but I had no way of actually knowing that. I surmised that if he had, Frank's adult personality had been able to shrug them off eventually. Julia's more malleable brain had made her a perfect victim.

I saw Dr. White and Mr. Quick quarrel in the family living room when Mr. Quick decided to terminate his hefty subscription payments. Because such arrangements were illegal, Dr. White had no legal recourse.

So he used Julia.

I saw her, as if through her eyes, going into her bedroom and opening a small zippered kit. Dr. White had helped her create it. The components were neatly organized—the disassembly enzymes, which would erase certain aspects of her father's personality (her father, after all, had paid Dr. White handsomely to create this very template), a few tools, another vial, all held in with wide elastic bands. I saw her drop something into her father's martini as he sat in an easy chair in the den, next to a large stone fireplace in which a fire blazed on the wintry afternoon. I saw him pass out, slump in his chair, and stop breathing, as Julia glanced impatiently at her watch. Her mother and sister were out shopping and not due to return for some time.

In a curious sense, what happened to Frank was not murder to her, because she then dragged him to the cocoon in which her mother—indeed a copy, since she had died soon after their automobile accident, along with Julia's sister—spent each night. With much effort, she heaved him into it and watched the cocoon shrink and cling to him.

She then—unemotionally, efficiently—perhaps because she was a medical student—gouged out his eye with a small, delicate stainless-steel instrument and dropped it into a plastic bag, which she pocketed. She then

pulled a tiny box from her other pocket, opened it, and removed an orb containing an artificial iris.

Which held an entire artificial personality.

She inserted the eyesphere into the eye socket of her father. As the cocoon absorbed his old personality, this would infuse the new one, which would presumably resume payments to Dr. White. If all went absolutely right.

She heard sounds in the hallway, but when she turned the doorway was empty. Her heart beating hard, she got her groggy and now artificial father out of the cocoon and led him to his bed, where he appeared to sleep. She then returned to the den, tossed the eye in its plastic bag into the fire, grabbed the martini glass, and rinsed it with bleach at the kitchen sink.

The next morning, as she was making coffee in the kitchen, she heard urgent whispering from the dining room between her mother and her sister. Caught the word "police."

She realized, with a sickening feeling, that they either suspected or knew. That sound, at the bedroom door. They must have come home early from shopping.

She ran to her room, grabbed Dr. White's vial of disassembly enzymes, and put them in her mother and sister's coffee.

I knew that they were artificial, but it still gave me a turn as Julia quite calmly watched them drink the coffee and eat the pastries she took out to the sunny dining room. Perhaps they did so because they were both in shock, not completely believing that their Julia was capable of such acts.

As they were disassembled, Julia realized, with increasing panic, that they had of course spent the night in their cocoons. Their memories of the day—whatever they had seen, and their suspicions—had already flowed into the recording devices.

The dedicated interstices of their cocoons, the cables which sent the daily updates to eyelike biocomputers, ended at Frank Quick's safe. I watched her ransack his office for the combination, but she could not find it.

Then, dazed, she walked across the bridge, into the city. And forgot, for a time—months, it looked like—what had happened.

Until Dr. White tracked her down.

She made it back to her neighborhood twice; made it to her front door, the second time, before fleeing. Not even Dr. White was persuasive enough to get her to face her father, artificial and malleable as he might now be. Something of morality, however faint or degraded, still remained.

Or perhaps it was simply pure fear.

Then she hired me.

I saw Dr. White many times in Julia's memories. He had devised a way to maintain the wealth that would allow him to continue his "work."

If you could call it that.

I was sure that the law would put several other names to it.

As I sat in the Georgetown bar, which seemed as close an approximation to heaven as I, with my limited imagination, could dream of, I reluctantly realized that I had to go back to the past.

I crossed back into Rosslyn the next morning, in the gray winter dawn, knowing what I had to do. I was not sure that the information would re-

main in my slate, or even if it was usable in a court of law, but I knew that hard evidence did exist.

The world was new, yes. But human decency still remained, in some of us, no matter how strange everything else had become.

At first my old friend was not interested. "We have no jurisdiction over such proceedings, unfortunately," Detective John "Ace" Anderson, with whom I had a long-standing love-hate relationship, told me. "How many years have I known you, Mike? This is a first. You've never come to me with information. It's usually the other way around. I have to shake it out of you. We don't fool around with this artificial person stuff. There's not enough law to do one thing or another." He lighted a cigarette and leaned back in his battered chair. "You look like shit. What have you been up to?"

I put both hands on his desk, leaned over it, and played my card. "There's been a murder, Anderson. The murder of a real person. And you're not interested?"

"Why the hell didn't you tell me in the first place? What do you have?"

I told him.

The Quick house was in a wealthy Great Falls neighborhood, with a view of the Potomac through the snowy, leafless forest.

Mr. Quick himself answered the door, wearing expensive at-home clothing, impeccably groomed. He was balding, with dark hair, slightly overweight. He looked dazed; disoriented. But he was cordial enough. "Can I help you?"

Detective Anderson flashed his badge. "I'd like to ask you a few questions."

"About what?"

"A murder."

"Whose?"

"Yours," I told him.

An artificial person cannot be charged with a crime. Laws are slow to catch up to reality.

But Julia and Dr. White, being real, were charged with the murder of Mr. Quick.

The police read the eye of the sister from the copy which they found in the safe. The testimony was indisputable. As the librarian had told me, biology is precise. It was all ascertained authentic by the best experts in the field. The sister had seen it all.

I watched Julia during the trial. She never looked at me, though she must have felt my gaze.

I wondered how she felt, trapped on this side of the bridge. Unable to slip into the city for her necessary amnesia. I knew a lot about self-induced amnesia, and I understood Julia Quick's need for it.

I watched her exchanging glances with Dr. White more than once during the trial. She looked anguished; he looked stony. He too was trapped here, hopefully for life.

She had gone the limit for him—but not of her own volition. Her lawyer

found an expert who was able to show quite conclusively that Dr. White had implanted within Julia an irresistible need to do his bidding no matter what. Something to do with pheromones, something that hadn't worked nearly as well in Frank Quick. As a result of actions akin to child abuse and rape, Julia had committed this crime to give Dr. White what he so desired: money. Mr. Quick had a lot of it, and he was not planning on giving any more of it to Dr. White.

No one needed or had money on the other side of the bridge. It must have been deeply refreshing to Julia when she first went over and found escape from the terrible memories of what she had been made to do. They say that we are on the brink of a great, but possibly confusing, new age, in which money will be obsolete.

But Dr. White was like me. He had never fully crossed the bridge. He preferred to stay here, in the place where he had prestige, trying to do good—which unfortunately began to call for a few questionable deeds. He testified that he was trying to help people live longer. For that, being in the old-fashioned world, he needed old-fashioned money.

Apparently he didn't care where it came from.

His and Julia's choice of a facilitator for their plan to get the evidence of their crime had backfired quite spectacularly. But only by something quite close to accident. They had me pegged correctly. They just hadn't counted on the fact that, once, I had been a good detective, and that a bit of the fire and curiosity was left.

Julia, being her father's daughter, was quite clever in matters of the law and was able to style herself as a preyed-upon sweet young thing. Which, in truth, she was. After the trial, when she refused any kind of rehabilitation, she was escorted to Key Bridge and told not to come back. That was her sentence.

The trial was highly publicized, and several other victims came forward. Though their evidence was not brought into this trial, it became clear that Dr. White had worked this particular scam upon more than one family.

Dr. White was put away for life.

Or, at least, someone who seemed exactly like him was.

Mr. Quick's artificial counterpart, who afterwards won a groundbreaking case for the legal recognition of such entities, paid me well for my time. I heard that he once again reconstituted his family, after having the copies thoroughly cleansed of any bugs installed by Dr. White. He still lives in Great Falls with his wife and his daughter Elizabeth.

He did not re-create Julia.

I've paid for another year in the Zephyr Building. I get some business, not much. Same as before. Maybe someday someone as interesting as Julia Quick will step into my office.

Maybe she will be a nice person.

I have been stopped by the police more than once, when I return from Washington to Rosslyn. They take note of my frequent visits, and fear that I will bring some kind of nanotech contagion back with me.

I'm not sure why I still return to this side of the river.

Except that, despite my permanent conversion, I'm the same person, really.

We have all been artificial for quite some time, I realized. Even I had been saved by antibiotics, a purely human extrapolation, more than once. But now, human intellect has created the means for us to pass our previous limits. The challenge is not, as I had seen it before, to stubbornly remain in the past. Instead, the challenge is to use our new knowledge and abilities with respect for all humans, without coercion. It is a new literacy, and, like literacy, it can lead many different places. For the first time in history, it is possible for us to have a vision of what we are really about. I've decided that it's my responsibility, and everyone's, to work on this vision, to think about what is good in humans, and worth keeping.

I told you that I'd changed.

I like my office. I like the light of morning here. I like dark snowy afternoons in winter. I like the present, this strange mix of the past and the future.

I like life.

I will hold onto it as long as I can. ○

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TEACHERS' LOUNGE

Tim McDaniel

"It's an invasion, I keep telling you," Mark said from his desk. He pulled another essay off the stack and sighed.

Cathy, sitting at the central worktable, ignored the comment. "Have you ever used Concentration in your classes?" she asked him, blinking rapidly behind her thick glasses.

Mark hardly glanced up, though he raised his head slightly as if he meant to. "No," he said. "Who's got time for games, with the passive voice and past perfect to get through, and with the world coming to an end? Anyway, it's not really a higher level activity." His red pen hovered above the paper as he read the essay, poised like a hawk catching an updraft, searching for prey below. His beaklike nose contributed to the image.

"Yeah, I guess you're right," Cathy said, writing a large "16" on the back of a stiff five-by-eight card with a blue magic marker. She brushed a stray strand of yellow-brown hair back from her face. "Although one of my old classmates told me she uses it in her AEP class over at the U. It's hard to find activities that both the human immigrants and alien students will enjoy, so I use this one all the time, and the students seem to really like it. I use it for reviews a lot."

"They're making plans," Mark said. "The only reason this initial group is here, why they're learning our language, is to make it easier to administer us after they take over. They told me as much! One time their leader, Lit, just out and said—oh, man, look at this! How often can one student confuse 'fun' and 'funny'? We've gone over it and over it!"

Cathy turned the card over. "This time we're doing opposites," she said,

writing "Heavy" on the card. "Here's 'Heavy,' they have to find 'Light.' And I've got 'Dark,' too, so there's two 'Light's.' I think it'll be fun for them when they remember the word 'Light' has two meanings."

"Ummm," said Mark, crossing something out. "The point is, we're the only ones who seem to suspect anything!" He wiped sweat from his forehead. "I mean, except for the xenophobe nutjobs who want to seal the borders, and, I don't know, bleach the immigrants. But who would listen to *them*? And why should they?"

"It's fun for the students who need the vocab review, and it's also challenging enough for the top students, who don't really need to review it, but who can have fun just because they get to play and guess, and it's suspenseful." She carefully wrote "17" on the card and turned it over. "I give M & M's to the winning team, or licorice. Those red licorice twists. Red Vines. I get them in bulk at Sam's. They keep forever." She wrote "Interesting" on the card.

"But soon it may be too late. The thing is, we've got to let people know the danger." Mark started to put an essay down, then looked at it again. "She can't have a 47 percent. I better look that over again."

"I wasn't really sure for a long time if the Brall liked M & M's or not, because they just accepted the prizes and didn't eat them." Cathy inspected the card, put it in the stack, and took up another. Card 18.

"That could be cultural," said Mark.

"But then I heard they couldn't eat chocolate. Mut, one of my students, told me that. And so we hit on licorice as a substitute." Cathy looked at the list at her elbow, and wrote "Short" on the card.

"Maybe that's their Achilles heel," said Mark. "Chocolate. Maybe that's how we'll defeat them in the end. We could coat ourselves in it, save ourselves that way. Man, wouldn't that be ironic. Or I guess not. Not ironic."

The door to the office opened, and an older woman entered, curled black hair streaked with some gray, carrying a canvas bag with "TESOL '14: San Diego—Lighting the Torch!" printed on it in green lettering, above some artwork: a quill pen drawing shapes that gradually assumed the forms of Escher-like birds, which flew off the side of the bag. "Cambridge University Press: English as a Second Language" was written under the drawing. She set the bag down on an empty chair at the central table.

"Hi, Cathy," the woman said, smiling.

"Hi, Arlene. Just making a Concentration game here. For my Level One class."

"Ah. Good." Arlene took two small notebooks out of her bag and stacked them neatly on the table. "By the way, I can't guarantee anything yet, I probably can't until the week before next quarter actually begins, but so far enrollment looks pretty good. Our numbers are fairly steady. We should be able to give you a class next quarter. One hour, and maybe even two."

"Oh, that's great to hear," said Cathy. "I was wondering about that, but I knew that you didn't know for sure yet, so I didn't want to ask."

"Well, we can't know for sure, even now, but it looks okay."

"That's great. 'Cause you know, up at Edmonds they said their enrollment was down and they weren't sure they could throw anything my way. At least if I have one class, that'll see me through for a little while. And two would even get me benefits."

"Well, we get more of the refugees and immigrants in our program. At

Edmonds, they're more focused on the international students. We have a little more cushion to fall back on, when the economy overseas turns sour."

"That's great to hear." Cathy returned her attention to her game.

"Refugees, immigrants, and world conquerors, you mean," said Mark. "At least they remain confused by English grammar and spelling. If they can't ever master it, they can't use it to master *us*. Simple logic."

"Subjugated by the subjunctive," said Arlene.

"Yeah, Arlene! You know what I—" Mark suddenly realized that Arlene wasn't being serious, and went back to his stack of quizzes. "Last week they dissected a dog, you know," he said. "I read about it on the internet. An undergrad saw them out by the football field. They're figuring out Earth biology. So when their fleet comes, they'll be ready."

Arlene walked over to Mark and stood behind his chair. "A mess, huh?" she said.

Mark smirked. "Yeah. This one is from Arratello . . . uh . . ." he turned to the first page, and looked at the name again. "Arratellodobbullubob. I just call him Art. Do you know him? Or her, or it, or whatever is politically correct this week?"

"Most people think of them as male, because of their deep voices and their—I don't know—outspokenness in class," said Cathy, "but I heard that all of them are female. They only become male for reproduction, and then only for short periods."

Arlene said, "Yeah, I had him a few quarters ago, when he was in Level Two. I think I used to call him Bob. He sure did quite a job on that essay."

"I thought I'd run out of red ink. Look. 'I think erth it sould be lke Brall mroe. Example is transportation sytem and so on. Afir invation we are to cheange. Brains harvested to be efishenter.' I hardly know where to start with a sentence like that."

Arlene just shook her head. "Well, the Brall do have their troubles with writing skills. Georgina's Basic Writing Skills class is just full of them. It used to be the Arabs filling that class, remember?"

"Back then, we didn't have to keep the room at 82 degrees Fahrenheit for the aliens," said Mark. "They're the ones who want to stall any action on global warming, you know. They're just delighted with the work we're saving them. After the takeover—nice and comfy."

"Oh, Arlene? One of my old classmates will be working in Osaka, at a technical college, starting next month," said Cathy. "You were in Japan, right?"

"Yes, back in the early nineties. I was at a university in Tokyo, though."

"Yeah, my friend, she's been learning all the Japanese she can, in the time she has before she leaves. She says it's fascinating. I guess Osaka has its own dialect. Did you learn much Japanese when you were there?"

"Oh, you know, not really. Ah, do you guys have your attendance data for this month?"

"Uh, yeah." Cathy was pawing through the papers, books, stray rubber bands, loose paper clips, and dry-erase markers in her oversized cloth bag. "I know it's in here somewhere," she said, looking doubtfully at a piece of paper before stuffing it back in the bag. She pulled another one out. "Yeah, here it is." She passed the paper, somewhat crumpled, to Arlene.

"Mark?"

"Sure." Mark handed her the form. "Arlene, does the college have a contingency plan for during the takeover? I mean, like we have for earthquakes and mad gunmen?"

"I'm not really sure, Mark."

"Cause we should." Mark went back to his work. "Better safe than some alien's lunch, spread-eagled and naked on some extraterrestrial version of pizza. Or rolled up like sushi, if you want to get Japanese about it."

Arlene smoothed the attendance forms out on the table and began copying the numbers into a notebook with a green cover.

"I can't believe we're still worried about taking attendance," said Mark. "Once the aliens make their move, we'll be nothing but slaves under their whips." Suddenly he threw his red pen down. "I just don't get why no one cares! We've got to *do* something."

"I see Lit has been missing some classes," said Arlene to Cathy.

"Yeah. Always does the homework, though."

"The government guidelines say he's got to be in class. Otherwise, no funding for education."

"He's still under the limit. He knows about the rule. He has another course he's been taking," Cathy said. "It's been giving him a lot of homework."

"What class is that?" asked Arlene.

"Martial arts, probably," said Mark.

"A GED prep class. He got permission from the instructor to sit in. He's really motivated."

"Well, duh!" said Mark. "He's their leader! He'll be the one issuing commands, once he gets the subjunctive down!"

"I think he eventually wants to take the TOEFL test, get into a university. Take some Human Resources classes."

Arlene sighed. "That's not funded," she reminded Cathy.

"The only reason they *got* funded even for us was that someone thought they were refugees," Mark said. "Can't go home right away? Check. Not communist? Check. Funded!"

"We're just funded for workplace ESL, survival skills, adult basic education," Arlene continued. "Even if he gets accepted to the U, how would he pay for it? You know, most of our students are perfectly happy just to get a job."

"Lit has plans," Cathy said. "I think he wants to make something of himself."

"He'll make something of all of us, he gets the chance," Mark muttered. "Pit slaves, maybe. Doorstops."

"I'd be happy if he made himself into an employee," said Arlene. "He was offered a job two weeks ago, wasn't he? But he refused it. Meanwhile he's taking up space and those on the waiting list are trying to get in."

"It was a custodial job. Not exactly in his field. He was in some kind of managerial position on his home planet. One minute he's got responsibility for thousands, and the next he's competing for a job mopping a Burger King?" Cathy stopped writing on the card in front of her. "Some of the aliens, and humans, too, well, they'd be paying an awful lot more in taxes

if they got the English they need for higher positions. I mean, I've got a Ukrainian doctor in my class and he's sweeping out a football stadium. It's crazy."

"See if one of your aliens wants the job. If an alien Seahawks fan gets sick eating an Earth hotdog, they're in luck, right?" said Mark. "If a human chokes to death, they'll just chalk it up to 'one down, six billion to go.' Oh, yeah. They'd *love* it if we all choked to death on hotdogs. That's their dream."

"It seems to me," Arlene said, finishing up with her paperwork, "he'd be better off directing his energies to just getting a job."

"Hey, I hear that Kaoru got a job yesterday," said Cathy.

"Is that Kaoru Yoshida? The housewife?" said Arlene.

"Yeah. She's at the Safeway, on Aurora. She's just bagging groceries, but she's really excited. It's the first job she's ever had here. And I guess she can move up later, when she's ready."

"She didn't notify our department," said Arlene. "Students are supposed to let us know, so we can move them off the roll, and take in other pupils. We have quite a number on the waiting list."

"She probably will soon," said Cathy. "I can call her at home. I have her number."

"I hope so," Arlene said. "Otherwise we'll just count her as absent, and the slot won't open for anyone else before her absence limit is reached." She folded her arms on the table, watching Cathy work. Mark finished another essay and tilted back in his chair, sighed and stretched. Then he sat at his desk, his arms behind his head, scowling into space.

Cathy put down the cards she'd been writing on. "Arlene, I really would like to find some way to get the Brall some extra help. They've been having a *lot* of difficulty, and even though they work hard they make almost no progress. Could we find them some tutors or something?"

"I'm sorry, Cathy, but that's not funded. I don't see what we can do."

"Aren't there any scholarships available that could help defray the costs?"

"The government scholarships have dried up these last few years," said Arlene. "There are private ones, though. I always put the notices in your mailbox. Panasonic and Nestlé announced a couple last week. You got the notices, didn't you? And we should be getting the notice from Philip Morris soon. Of course, those are based on work-study, not tutoring."

"Cigarettes? Making cigarettes for Philip Morris?" said Cathy. "Oh, my doctors would just love that!"

"Give us all cancer," said Mark. "That's another dream the aliens have."

"Not just cigarettes," said Arlene. "They own a lot of companies."

"Oh, please," Cathy said. "Those programs are designed for training entry-level workers. They require you to stay with the company for six years or whatever after graduation. Lit and his group are managers and scientists. They just need the papers, the diplomas, so they can get the same type of work here."

Arlene shook her head. "Tell him to find a job," she said. "Save some money. Eventually he'll be able to afford his own education. There's nothing we can do. Somehow, our human students make lives for themselves. And a lot of them have seen horrific things that we can hardly imagine. These new students will have to go through the same process."

Mark said, "Once they're overlords of Earth, believe me, *we'll* be the ones trying to make lives for ourselves."

"Shut up, Mark."

Mark gave Cathy a surprised look, then glanced at Arlene, seeking confirmation that Cathy's kind of language was uncalled for, but no one met his gaze.

There was a knock at the door.

Arlene was closest. She opened it.

In the open doorway stood a creature about five feet tall, with a rubbery, conical body atop four elephantine legs. Two stubby arms sprouted near the base of the cone, while two others, more slender, were joined to the body about halfway up. The apex featured a pair of long prehensile lips and three stalked eyes. The entire being was covered with short blue fur, sticky with slime.

The alien held a paper in one of the upper arms.

Behind the student stood other aliens, filling the hallway, crowding against one another.

"Well, hello, Lit," said Arlene. "Is there something—"

Lit pushed slowly but inexorably past her into the room. The others remained outside.

"Oh, God. It's going down. It's happening *now*!" said Mark, his face white. He stood up, but his knees buckled and he sank to the floor.

"I have the announcing," Lit said. Her eyes waved about.

"Okay," said Arlene. "Is there someone in particular you want to talk to, or—"

"I have announcing," repeated Lit. "I and we have, had, will have, have had—" Lit broke off, and brought the paper up to an eye. She began to read.

"This is us statement.

"We had a planning invade into your world. Our high tech is easy is doing that. You will to be the good food, the tender brains. Problems is a supervision of local personages. Problems is needed the English for a task. An syntax, a pronunciation, a irregular forms, a tenses, an spelling. Human classmates students we no know how they learning this messy. Nothing is be sense, consequence us leave.

"Goodbye."

Lit paused for a moment in the middle of the room, then swiveled herself about and moved to the door. She joined her fellow invaders in a march down the hallway.

"The invasion—called off?" Mark whimpered from the floor. "Is that right? Is that what I heard?"

"Yeah. But, my God. Did you hear him?" said Arlene. "Nothing is sense, consequence us leave.' Okay, so it's a tough language. But our *human* students manage it, after a fashion. And *without* the motivation of a planned invasion and top-level jobs awaiting them on completion. These aliens never really tried! Go out of your way to help, and they just whine." Arlene snapped the attendance book shut. "Typical."

"It just takes some people longer," said Cathy.

"It'd take these guys forever," said Arlene.

"No invasion," said Mark. "No invasion! Hey, English is like that flu bug that got the Martians in *War of the Worlds*!"

"We'll have to put that in our next brochure," said Cathy. "We're always so obsessed with recruiting."

"Yes . . ." Arlene murmured.

Mark looked up. "Something bothering you, Arlene?"

Cathy scowled. "We just lost a whole bunch of students. *And* my teaching hours for next quarter, I bet. Goodbye, benefits. I was planning to see a dentist for a checkup."

Arlene said. "Mark, the aliens are here under a government grant, right? The federal government pays their tuition."

"Yeah. So?"

"So most of our students have all sorts of hoops to jump through. Visas, time limits, attendance policies. But the government wanted to show these aliens how welcoming Earth was. None of those restrictions were attached to their funding."

"Again, so?"

Arlene whirled on Mark, smiling. "The aliens will take years and years to learn the language—it's just too foreign, they can't wrap their minds around it. But if we can *convince* them that they're making progress, they'll stay in our program, we'll continue to get more money—"

"And work? Benefits?" said Cathy.

"A cash cow, forever!" said Mark. "Right! But—"

"I got to get those guys back!" said Arlene. She rushed out the door.

Cathy looked at Mark. "This is a good thing, right?" she said. "I mean, they'll be back in class. And they really *do* need English, for their, um, work."

"Maybe," said Mark. "But these aren't our typical students. Our human students come here to make a good life—"

"To add to our tapestry of—"

"Right. But these guys want to eat our brains."

"You have a point. But if Arlene succeeds in sweet-talking them, they'll be back in our classes. What can we do?"

"It occurs to me that we should suggest to Arlene that the aliens really need a specialized course, just for themselves. And in addition to the usual material, in that class we can introduce, oh, I don't know. All the weird stuff buried in the language."

"Make it even harder?" said Cathy.

"Harder, hell. We'll make it impossible. We'll give them all the outdated usages, the irregular forms, the uncommon grammatical structures, the bizarre vocabulary items . . . Nouns like 'hobbledehoy,' verbs like 'absquatulate.' And we'll do a whole week comparing 'flammable' and 'inflammable.' And pronunciation and spelling—oh, so much good stuff there! Rough and tough and bough and cough . . . yeah, I like this. The brain eaters, the predators, become the prey! Well, not exactly the prey, but—"

"We can spend a long time on idioms," said Cathy. "There is *no* sense there. Slang, too; it's always changing, so they'll never catch up. And articles, 'a' and 'the.' I don't think *anyone* understands the rules for those."

"Right," said Mark. "And weird tenses like 'by the time John will be coming home from school, his mother will have been eating the cake for two hours.'"

Cathy said, "And then we'll tell them to put it into passive voice!"

"Right!" Mark said. "If they thought the language was hard *before*—hah!" ○

PRODIGAL

Justin Stanchfield

Justin Stanchfield's fiction has appeared in over seventy-five publications including *Boys' Life*, *Interzone*, and *The Intergalactic Medicine Show*. He lives with his wife and two kids on a Montana cattle ranch, a stone's throw from the Continental Divide. "Prodigal," his bittersweet story about just how hard it can be to go home, is his first tale for *Asimov's*.

I didn't recognize my father when he stepped past the security barrier, a single carry bag banging against his thigh in the weak spin-gravity the hub produced. He wore a simple one-piece flightsuit beneath a nylon jacket covered with patches from the vessels he had piloted. His hair was longer than I remembered, nearly to his shoulders, deep brown without a single stitch of gray. It curled at the ends to give him a devil-may-care appearance that contrasted harshly with the weary expression on his face. Not until he turned and noticed me did I finally let myself believe it truly was him.

"Mara?" Even from across the crowded reception lounge I heard the question in his voice. Obviously, he hadn't recognized me, either. I nodded, then started toward him.

The old, boyish smile broke in full, though it faded quickly as he hurried to where I waited, using that easy, loose-gaited stride I'd seen so many deep-spacers use. He dropped his carry bag and threw his arms around me. The stiff fabric of his jacket held the musty, locker-room scent I'd always associated with space flight. I let him pull me closer. Was that hesitation I felt, not quite a flinch but maybe something deeper? Guilt, perhaps? Or regret? Apart from a handful of video calls over the years, we had become strangers. The laggardly, stop-and-go pace of communication between planets hardly made the effort worthwhile.

"It's good to see you," I finally said. I'd returned the hug, but was glad that the awkward moment was over. Self-consciously, I added, "I wish it was under better circumstances."

He nodded. As we stood there studying each other, my first thought was that this man could not possibly be my father. Apart from the tiny creases at the corners of his eyes—and those had been there since he was a teenager—his face was unlined. Despite his heavy beard stubble, he hardly looked a day over twenty. Not surprising; he had been twenty-five when he took the change, six years older than I had been when I underwent the

treatments. Still, the pain in his expression seemed ancient. The corner of his lips trembled slightly, and I was sure he was fighting back tears.

"Mara . . ." His voice broke on my name. "They won't let me see her."

"I'm working on it," I told him. "I've got a call into the consulate. Hopefully they'll cut through the red tape and issue a temporary visa."

"And when they can't? Or won't?" Anger flashed in his eyes, but he covered it well. "I'm sorry. None of this is your fault. But I've been fighting these same pin-headed bureaucrats since I left Ceres."

"Don't worry. I have connections." I managed a weak smile. "Remember, I work for them. I have a few favors I can call in."

That seemed to calm him, at least temporarily. Wil Dupuis had a mercurial temper. That much of my childhood I recalled all too vividly. He drew a long, deep breath, sighed as he let it out, then asked, "Have you talked to Jane?"

"I called her yesterday. I told her you were coming."

"Was she . . ." He hesitated. I could see how much this effort was costing him. "Was she in pain?"

"They have her on medication. She's resting comfortably."

"Yeah?" He ran a hand through his hair, then tipped his head back and stared at the ceiling, his eyes following the high, curved beams that swept down to the viewscreen that made up the outer wall. On it, displayed in real-time, Earth hung placidly, the air above Antarctica so clear I could actually make out the clusters of buildings and runways that ringed the Needle's massive foundation hundreds of kilometers below us. Father let his gaze drift back to me.

"I'm sorry, Mara. I shouldn't take this out on you. It's just that I know how short time is." A shudder passed through him. This time, he didn't try to hold back the tears. "A man shouldn't have to watch his daughter die."

"I'm your daughter, too," I felt like saying. Instead, I put my arms around him again, pulled him close, and let him cry on my shoulder.

We rode the public elevators down from the docking ring to the permanent quarters two decks below. I told him we could hit one of the little cafés or order take-out, but he said he didn't have much of an appetite. Neither did I. I felt like I had been sleepwalking, the last few weeks blurred into one long stretch punctuated by phone calls and text messages and the endless, empty waiting. Waiting for father to arrive. Waiting for one bureaucrat or another to return my call.

Waiting for Jane to die.

The people we passed in the spiral corridor muttered polite greetings as we squeezed around each other. Thankfully, none stopped to chat. Most were short-timers, career-minded techies, or mid-level agents serving six-month tours before riding the elevator back to *terra-familiaris* and the lives they had interrupted. I didn't have that option. Like my father, I was barred from the surface. I had reconciled myself to the fact ages ago and made the best of it that I could. At least, that's what I told myself in the quiet hours.

"Just a sec." I slipped past him as we arrived outside my apartment

door. I put my thumb on the touch-pad and breathed against the face-high sensor. The bio-lock recognized me and the door slid aside almost soundlessly. "Remind me to code you into the lock." I said over my shoulder. "That way you can come and go as you please."

"I hope," he said, "I won't be here that long."

I stared at him, and to my surprise saw him blush. He held up his right hand, palm out, and quickly added, "I didn't mean it to sound like I'm not glad to be here. It's just that . . ."

"I know," I said, forestalling any further embarrassment. "I understood what you meant."

We stepped into my apartment. The lights came on, a warm, yellow cast to them that simulated a summer evening. The wall panels showed a lodgepole thicket seen through the screened-in pillars of an old-fashioned porch, the wood grayed with age and weather. Beyond the forest a broad, sloping meadow beckoned, sun-bleached grass waving in the breeze. Now it was my turn to blush. I had completely forgotten to reset the vista to something less personal. An odd expression crept over my father's face.

"Is this the cabin?" he asked softly.

I nodded. I had been eight the summer we spent on Lost Horse Creek—father, mother, Janie, and me. Janie was fourteen, and complained endlessly about how bored she was. To me, it had seemed like heaven. Maybe it was only heaven in recollection, a faded pastiche of childhood imagination seen through the filter of my unending middle-age. Maybe I just liked the nostalgia of something that had never really been true in the first place.

"Want a drink?" I asked, anxious to avoid the subject. "I've got bourbon or vodka."

"They let you have alcohol on the Needle now?"

"No. But like I said, I have connections." I went around to the little kitchen, the two rooms separated only by the counter jutting from the inner wall. From the tiny refrigerator I took out a bottle of Jim Beam, then two glasses from the cabinet above it. I didn't bother with ice, but poured two fingers of the amber liquid into each glass. Careful not to spill, I carried the glasses back into the main room, handed one to Father, then nodded at one of the room's two chairs. We sat opposite each other, both of us leaning slightly against the ring's rotation. Spin is not the same as gravity, no matter what the travel agencies tell you.

"Cheers." I raised my glass. Father sipped at his bourbon, then nodded thoughtfully, savoring what was probably the first whisky he'd tasted in decades. I tossed most of mine off in a single swallow. A familiar numbness rushed through my nerves. I welcomed it.

Father took another sip, then let his arms rest on his knees, the plastic tumbler clasped in both hands. He stared into it, as if he expected to find some lost revelation at the bottom of his glass. Without looking up, he said, "How long until you hear from the consulate?"

"It's barely dawn in Washington. I wouldn't expect to hear anything for a while." I finished my drink. Hesitantly, I asked him if he wanted me to put in a call to Jane's hospital. He shook his head.

"No." He glanced up from his glass, but didn't meet my eyes. Instead, he stared out at the simulated meadow. "Let her sleep."

I doubted if she was asleep, but I understood. Father had traveled millions of miles to see his first-born child before the cancer in her spine took her, but that didn't mean he was anxious to face the truth of it all. The silence lengthened uncomfortably, the recording of wind whispering through the wall speakers the only sound. I stood up, went back into the kitchen and poured another drink, then on an impulse brought the bottle back into the living room with me, the glass icy cold in my hand. Father let me pour another finger's worth into his tumbler before I sat down. It was going to be a long night.

Human beings evolved at the bottom of a deep ocean of air, our bodies shielded from the barrage of cosmic radiation by Earth's magnetic field. Once we ventured into space it became apparent how ill-suited we were to this strange new environment. We could build ships with thicker shielding, or faster engines to let us reach our destinations with less exposure, but in the end those were temporary fixes at best. What was needed was a new kind of human.

And in that respect, we surpassed all expectations.

Tailored viruses were designed to stimulate the body's natural immunities and trigger dormant stem-cell clusters to repair the damage produced by the relentless bombardment. Wil Dupuis, my father, had been among the first test pilots to undergo the treatment. Of the twenty men and women who'd been approved for the painful series of shots, six died within the first month, two more by the end of a year, and one went insane. But those that survived found themselves virtually immune to sickness or decay. Suddenly, real space travel became possible—crews were now able to make journeys that might stretch into years.

What no one had realized was that the effects might be permanent. Unintentionally, medical science had created a sub-class of people who were, for all practical purposes, immortal. By the time the public understood the consequences, thousands of people had taken the transformation.

I was one of them.

My parents divorced when I was thirteen. Mother blamed my father's frequent absences, blithely ignoring her own dalliances with other men. He barely seemed to notice what was happening. When the divorce became final, he was halfway to Mars. Jane had just turned nineteen. She was in college and had already dusted her feet of the poisonous environment that had taken over our family. She had her own dreams to chase. I, on the other hand, was devastated. Mother and I never got along well. She tried, but we were simply too different, or maybe too much alike, to ever be truly comfortable with each other. This was especially true as the years went by and I neared adulthood. I missed Father desperately. My heart constantly returned to that lost summer in the Rockies when we had actually been a family. After I graduated, I decided to follow in his footsteps and become a pilot.

The treatments were safer by the time I checked into the hospital for the first of the long series of shots and transfusions. Still, 10 percent of the patients suffered serious, often debilitating, side effects. I was scared to death as the syringe pricked the tender skin inside my elbow, the clear,

syrupey serum flowing into my veins. I was sick for days afterward and I was convinced I was dying. Still, I reported gamely for the next series, and the ones after that. Three months after I began, I was certified healthy and accepted for flight training by one of the fledgling multi-planetary corporations. Two years of mind-numbing training followed, but in the end I earned my commercial ticket. I was ready to start my career pushing ships back and forth across the rapidly expanding frontier.

Fate, however, has a funny way of intervening.

First, I discovered after my first and only flight as co-pilot that I was not cut out to be a spacer. I didn't like the unending routine in a ship barely as large as most mobile homes. I hated the competition between crewmates, and I especially hated the excruciating responsibility. I never could reconcile myself with the thought that lives rode on my shoulder, that one mislaid decision, one wrong switch, could lead to passengers dying. When we reached Martian orbit I resigned from the crew and took a job as an orbital flight controller on Phobos. A few years later, I returned to Earth and accepted a similar position here on the Needle.

Once again, Father barely seemed to notice.

Others, however, did.

With each new medical study, every new report about how long those of us who had undergone the change might be expected to live, public outcry worsened. While billions suffered in the slums and third-world factories, those addicted to the 24-7 media saw us as a privileged class. We were played up as immortal monsters bent on securing universal domination. Not surprisingly, both the Parliament of Terra and the U.N. banned anyone who had responded well to the treatment from Earth. We became exiles.

The process was quickly outlawed. Of course, although the legitimate research was halted, the procedure went underground. Any celebrity or politico with cash in hand could get the treatment done in dozens of private clinics. The colonies continued to rely on those of us with enhanced immune systems, but thanks to the media and their unwitting puppets in government, Earth sequestered itself from the revolution. I made the best that I could of my new life, rising slowly through the ranks of controllers. I consoled myself with the material comforts a long and single life could provide. Father continued to fly, moving almost instinctively outward as the frontier expanded beyond Mars and the asteroids to the Jovian system and even Saturn.

Meanwhile, Jane got old, got sick, and eventually got up the nerve to tell me she was dying. Father, perhaps for the first time in his life, discovered that even he was capable of regret.

The dot-pager in my earlobe woke me at six-thirty the next morning. I sat up in bed, my head thick from the bourbon, and fumbled for my phone. A man's voice, heavily accented with what I took to be Mandarin, clicked on, the time-lag between ground to sky hardly noticeable.

"Mara Dupuis?" he asked.

"Yes." I was glad the call was audio only. If I looked half as bed as I felt, I would probably frighten the man out of his wits. The treatments, for all their benefits, did nothing for a hangover. "How can I help you?"

"My name is Li Chin, with the Bureau of Extra-Planetary Commerce. Recently you applied for a hardship variance to your travel restrictions."

"That's correct. I applied several weeks ago, and again last Thursday." My throat was so dry I could barely speak. I shifted on the edge of my bed and reached for the bottle of water I'd left there the night before. It was tepid and flat, but I drank it gratefully.

"That is what my records show as well," Chin continued. "Unfortunately, your request has been denied."

"But . . ." My hand began to shake so badly I found it hard to keep the tiny phone pressed to my ear. "You realize the request is to visit a dying family member? We would be under constant surveillance and would return to orbit immediately following the visit."

"Of course. But, sadly, the request must be denied. You are on the list of proscribed persons." There was a slight pause. "You did say we, did you not?"

"Yes." Maybe there was hope for my father's permit even if mine was denied. "The request was for my father and myself. His name is William Dupuis."

"Ah, yes, I have his form in front of me."

"Then, he has permission?"

"I am afraid his request is also denied." I couldn't tell if Chin was genuinely contrite delivering the bad news, or if he was quietly enjoying the moment. "If you would like to appeal the decision . . ."

"I would," I told him. He gave me the names and ID numbers of the agencies to go through, then politely hung up. I sat stunned, my stomach curled into tight knots. A shadow fell across the floor and I saw my father standing in the open doorway, his elbow propped against the wall. He wore a pair of light green scrub pants, but was otherwise naked, his brown hair tousled.

"Problem?" he asked.

I nodded. Suddenly, it was very hard to look at him. Instead, I took another sip of lukewarm water before I launched into what Li Chin had said a few moments before.

"So, what now?" He couldn't quite hide his growing anger.

"We appeal."

"How long is that going to take?"

"I don't know." I raised my head and looked him in the eye. The pain and frustration I saw on his face was heartbreaking. "I'm sure it won't take long, given the circumstances."

"All right." He ran his hand through his hair, leaving it in spikes above his high forehead. His eyes bored into mine. "And what happens when the appeal is turned down as well?"

I looked away. We both knew I had no answer for that question.

Looking back, I suppose everything that happened was inevitable. At the time, though, I was too caught up in the events to see them clearly. After the disappointing phone call, I air-showered and dressed for what I assumed would be a long day of heated wrangling with the various agencies that held my life in their collective fist. I chose a conservative brown one-piece that effectively mimicked my controller's uniform, then donned

a tailored smart-fabric jacket, and set the color a shade darker than my hair. To the casual observer, I looked like just another high-ranking official, which was exactly the look I wanted.

"I'm going to be gone a couple of hours," I told Father on my way to the door. He looked up from the chair he was sitting in. He had dressed as well, a blue flightsuit covered in multiple pockets, and the same jacket he'd worn the day before.

"You're going to file an appeal?"

"Among other things," I told him. "I have some favors to call in."

He nodded, but said nothing. From his posture, I knew he didn't hold a lot of hope. A surge of anger swept through me, but I held it in. While I understood on an intellectual level how he felt, his lack of confidence stabbed deep. I opened the door, then paused and turned around.

"Are you going to be here when I get back?"

A diffident shrug, followed by a piercing, unblinking stare. "Where else would I be?"

His tone stung, but I ignored it. Once again I was reminded of how little I actually knew my father. I stepped into the corridor, sealed the door behind me, then started toward the hub.

The Needle is enormous—the structure stretches hundreds of kilometers from base to tip. The actual living section, however, is rather cramped, especially compared to the LaGrange stations that accommodate the real flow of interplanetary traffic. I thought about riding one of the public mag-cars, but decided in the end to walk, giving myself the extra time to map out a strategy. First I went to my office on Three Deck and filed the appeals. Then, finished with the actual paperwork, I stepped across the hall and rapped on the door opposite mine.

"Come in," a bland, high-pitched male voice answered. The door slid open. Inside, seated behind an unadorned plastic desk, sat my supervisor, Chief Controller Edward K. Edmonds. A startled frown flashed across his face.

Edmonds was a slight man, thin with graying hair and a short, neatly clipped mustache. He was forty-seven, three decades younger than myself. Even so, I felt a little intimidated. Sometimes, I think a respect for those who look older is hard-wired into our brains. Edmonds had been my supervisor for three years, a transplant from Earth, and would no doubt transfer again soon, either to Washington or Shanghai to continue his slow rise through the agency.

We both knew I actually ran the office. We also knew that I would never rise beyond my current position, no matter how many decades I might work as a controller. As Li Chin had so pointedly mentioned earlier, I was on the list of proscribed persons.

"Mara?" He seemed genuinely surprised. "I thought you had requested some personal days?"

"I did."

He nodded at one of the chairs neatly arranged in front of his desk. Unlike most offices on the Needle which relied on wall-screens to lend a touch of warmth, Edmonds had planted air-fern and allowed it to take over two of the inner walls. More than once I'd caught him fussily trimming the springy little fronds, pruning them in the way I imagined some

ancient Japanese poet-warrior might have cultivated a bonsai tree. Still, I had to admit, his office always smelled wonderful.

I crossed the room and sank into one of the chairs. Edmonds closed the screen on his computer, folded it down, then leaned stiffly forward on his elbows, all the while watching me. He forced a smile. We were colleagues, but hardly friends.

"How is your sister?" he asked politely.

"Not well." I hesitated, carefully timing what I needed to ask. "Actually, she's the reason I came here this morning."

"Oh?" Edmonds cocked an eyebrow. Again, I waited a heartbeat before continuing.

"I'm sure you know my father arrived late yesterday?" He bobbed his head in answer, and I went on. "When he first told me he was coming several months ago, I had hoped Jane might ride the elevator up to see him. Unfortunately, my sister's cancer has progressed to the point where she can no longer travel. And my request for a travel variance has been denied. I've appealed, but I don't know how much good that will do."

"I'm sorry to hear that," he said. "I wish there was something I could do to help."

"Actually, I think there might be."

Now his brows drew together, his expression surprisingly forthright. "What did you have in mind?"

"There are seventeen Consulates with offices on the Needle—any one of them could offer my father temporary diplomatic status. Once that happens, he could travel without restriction, at least as far as Phoenix where my sister is undergoing treatment."

"Mara, I don't have that kind of authority."

"I realize that." I leaned closer, keeping my eyes steady on his. Inadvertently, he drew back, his fingers clutching at the glassy surface of his desk. For the first time since I'd known him, I think I actually intimidated him a bit, which was exactly what I hoped to do. I might appear to be twenty-one, but I had seven decades of life and experience behind me. Pressing my advantage, I continued.

"You know people, Edward. You have friends inside those embassies. I'm not asking for a miracle, just a chance to meet with one of them and make my case."

"I . . . I don't know." The idea seemed to frighten him. I could almost see the dark thoughts reflected in his eyes. No doubt he was watching his carefully mapped career plan crumple. "Mara, you've got to understand. . . ."

"Damn it, I do understand!" The anger in my voice was genuine. Where had that come from? Edmonds' eyes widened, the tone in my voice seemed to drive him further back from his desk. Was he frightened? To my surprise, I found the thought delicious. "I've devoted my life to this agency. You can't argue that I'm not an asset."

"I never said you weren't."

"Then step up for me." I let myself calm down. Inside my chest, my heart was thundering, but I think I hid it well. "Edward, we aren't criminals, and this isn't some sinister plot. All I want is for my father to see his daughter before she dies. Is that too much to ask?"

"I . . ." Tiny beads of sweat had appeared on his forehead, but he made no move to wipe them away. I kept my gaze fixed on him, not giving him the chance to turn away. Finally, he nodded, and gravely sighed. "I'll see what I can do."

Six hours later, bone-weary, I returned to my apartment and opened the door. In my pocket was a flash-drive with an authorization issued from the Australian Consulate. Tired as I was, I couldn't stop grinning. Despite everything, I'd made good on my promise.

"Father?" I called. "Dad?"

The room was empty. I checked his bedroom, and then mine. On the night stand beside my bed I found a flat-screen with a memo light flashing. I picked up the flexible reader and thumbed it on.

"Mara. I'm sorry but I couldn't wait. I'll see you in a few days."

Furious, I threw the screen to the floor, hoping to see it shatter into a million pieces, but in the weak spin it simply fluttered lazily downward. Not bothering to change clothes, I hurried out of my apartment and started for the docking ring.

Situated at the very top of the Needle, spreading outward like the crenellation on a medieval tower, the docking ring took up nearly a hundred thousand square meters of space, the various bays and holding tanks opening onto a central hub. Unlike most of the slowly rotating station at the tip of the elevator shaft, here the ring's motion was carefully nulled to take advantage of zero-gee. The reek of machine oil and ozone permeated the gunmetal gray chamber, while enormous floodlights mounted on high girders melted patches on the frost that formed along the inner walls. It was cold in the ring, and I zipped my jacket tighter as I stepped out of the long, cylindrical mag-car to the passenger platform.

Across the tumult of cranes and catwalks, I spotted my father standing outside one of the gantries. He noticed me, but made no move to run. Working my way clumsily around a stack of shipping containers, I crossed the central hub, then pulled myself onto the platform beside him.

"Damn you." I raised my voice to be heard over the machine noise. Clouds of breath formed around my face in the frigid air. "You intended to do this all along, didn't you?"

He shrugged. He had changed into padded, dun-colored pants tucked into insulated boots. A hooded coat, dark blue with bright yellow piping on the collar and sleeves, replaced his flight jacket. On the left breast, scuffed by hard use, was an embroidered patch that identified him as part of the crew of the *Goshawk* out of Toronto. Beneath that was a name tag that read *Mendoza*. I had no idea how he secured the jacket, but I had no doubt he would have phony credentials somewhere in his pockets to match. I was shaking, though from the cold or rage, I wasn't sure.

"At least you could have told me you intended to sneak down to the surface and saved me a lot of effort," I said, glaring at him.

"I'm sorry." Another shrug. "You've got to understand, Mara, I've had a long history of not trusting the wheels of bureaucracy."

I blinked as the realization struck. I had blithely assumed my father

would obey the restrictions. Obviously, I was wrong. This was certainly not his first trip under an assumed identity.

"You bastard." I wasn't sure if I was angry with him for lying to me, or for thumbing his nose at the same authority I worked for. "Do you have any idea how much trouble you would be in if you're caught?"

"Do you think I'm some kind of newbie?" His face relaxed slightly. "Mara, I'm sorry I didn't go through channels, but there simply isn't time to wait. Jane can't hold out much longer."

"You should have trusted me more." From my inner pocket I drew out the pin-drive with the diplomatic credentials. "I told you I had favors I could call in."

He actually seemed impressed, but made no move to take the little device from my hand. Instead, he forced a weak smile, then tipped his head toward the gantry door. "Let's go aboard where it's warm. You're so cold your lips are turning blue." He started toward the broad, open hatchway, pulling himself along the rubberized steel railing, then glanced back at me over his shoulder. A scowl cut across his face. "Damn it, Mara, you're not breaking any of your precious regulations by just visiting, you know."

The scorn in his voice was so thick I couldn't believe he'd said it. I stood there, teetering in the weak gravity, my mouth hanging open while I fought back tears. At once he saw how deeply his words had struck, and reached for my arm, but I snatched it away.

"I didn't mean it to sound like that. . . ." he said.

"No? How did you mean it to sound?" All these years I had lived with my father's indifference, but I'd never thought it was more than that. "I had no idea I was such a disappointment to you."

"You're not a disappointment." Suddenly, he couldn't meet my eye. "Come on, let's go aboard the ship and talk."

"Go to hell."

I started to turn around, but he was much better in low-gee than I was and gently caught my sleeve. This time I let him pull me toward the gantry. As hurt as I was, part of me desperately wanted to get everything out in the open. The anger that had flared earlier in Edmonds' office returned, and for the first time in ages I found myself actually relishing a confrontation.

We glided down the short passage, the walls a brackish gray in the flickering fluorescent lights. At the far end, an airlock stood open, the warning strobe flashing amber. Beyond it, closed off by insulated doors, lay the *Goshawk*, her cargo already offloaded. The ship's low bay was empty and stark.

"So, why pretend to be part of this crew?" I asked, wishing my lips weren't trembling so badly. I wanted to appear contemptuous. Instead, I only sounded cold.

My father shrugged as he continued to lead the way deeper into the ship. "I've known the pilot and the co-pilot for ages. We've done business before."

I let the remark slide. No doubt he was used to this, but to me the thought of going behind the law felt vaguely repulsive. When had I become so entrenched in the system, I wondered? Maybe my father was right to hold me in contempt. He thumbed a side door open, and we drifted inside the ship's cramped galley. The aroma of hot coffee and grease floated on the warm air. Father grabbed one of the overhead straps, then

turned to face me. He floated above the narrow table like some glowering genie in a nylon parka.

"All right," he said. "Let me have it."

"Have what? You make this sound like a scuffle over who gets Great Grandmother's china. Damn it, you've been lying to me for years. How do you think that makes me feel?"

"For the record," he began, "I've only been down to the surface five or six times since the restrictions went in effect. Besides, what would you have wanted me to do?"

"You might have trusted me," I said quietly.

"I did trust you. I *do* trust you." He actually seemed contrite. "Maybe it was wrong not to tell you, but I couldn't stand the thought of what might happen if I was caught and you were somehow implicated. You would have lost everything you've worked so hard to achieve."

"All I've achieved?" I snorted in disgust, despite the fact that everything he said made perfect sense. I didn't want to be reasonable. I wanted to lash out and make him see how deep the wounds ran. "Do you think living on this place is something I wanted? Yes, I've made a life here, but a stalled career two hundred miles above the god-damned South Pole is not how I saw my life progressing when I decided to follow in your footsteps and take the change."

He muttered something under his breath. I felt my face flush, and snapped at him. "What did you say?"

"I said 'I should have known you would pin this on me.'" He tipped his head down until our eyes locked. "I know I wasn't the perfect father. Hell, I was a lousy father. But I never, not once, encouraged you to take the change."

"No, you're right," I said, unable to keep the bitter edge from my tone. "As a matter of fact, you never encouraged me to do a single thing."

"What's that supposed to mean?" Anger flashed in his eyes.

"Nothing. It doesn't mean anything." I drew a deep breath, then plunged on. "Just answer one question. Would you be here if the tables were turned and it was me dying instead of Jane?"

His face paled; the hurt in his eyes was so horrendous that I immediately regretted what I'd said. He started to say something, but I cut him off. "Don't, please. That was unfair, and I apologize. But I've known since I was a baby that Jane was your favorite. How could I not notice?"

"Mara, honey . . ." Suddenly he was drifting toward me. I tried to move away but he caught me and enfolded me in his arms. I might have pulled back, but didn't. All my anger, all the years of resentment faded into the background, and suddenly I was a child again, crying over a skinned knee. I felt his hand on my back, patting gently, a rare gesture when I truly had been little.

"Mara," he continued, no longer hiding his own tears. "I loved you both. There was never a favorite. If it seemed that way, then I'm sorry. It's just that Janie was always so angry, so resentful. But you, I never had to worry about. I always knew you would do the right thing."

"Yeah?" I choked out a harsh laugh. "Maybe I should have tried misbehaving more often."

He pulled me closer. "We're not all cut out to be rebels."

"No." Softly, I pushed away until I could face him eye to eye, and then I actually managed to smile. "Some of us I guess were just meant to be boring."

"Boring?" He shook his head slowly. "I wouldn't call you that. Mara, perhaps I haven't said it before, but I should have. I'm proud of you."

Again, he pulled me close. I didn't resist. After all this time, I'd finally heard the one thing I had waited for all my life, but instead of feeling elated, I just felt empty. Empty and old.

Jane passed away a week later, Father at her side during the last hours. I wasn't physically present at the service a few days later, but attended over the vid-link. Through the wall screen in my apartment I saw Father seated in the front row of the chapel. He was flanked by a pair of security guards who had been hired by the Australian embassy, ostensibly to protect him from any protesters who might be angry that an immortal had been allowed to return home. As far as I could tell, no one even noticed. That, I thought, was a good sign. Maybe in a decade or two, people would begin to see how ridiculous their fears had been and the restrictions would be relaxed. Then again, maybe not. Either way, I really didn't care anymore.

At the end of the simple eulogy, delivered by one of Jane's grandsons, the crowd filed out. Father glanced at the tastefully screened alcove where those of us attending via the net were displayed, and smiled. I smiled back, then let the image of the chapel fade. The walls went dark and, a few seconds later, brightened once more. I had changed the wallpaper; the cabin in the Rockies no longer held the same charm it once had. Now, a different vista filled two sides of my living room, a stark, rust-orange landscape framed by pink skies. Wispy clouds drifted on the horizon, tendrils of mist at once both familiar and alien. In the foreground the entrance to an underground city rose from the rocky soil, enormous plascrete ramparts capped by flashing strobes. A bulky tanker truck with balloon tires trundled up the low ramp and turned west, a trail of brown dust churning in its wake.

I sighed as I watched the tanker vanish into the distance. I had lived off Earth most of my life, but other than my brief sojourn on Phobos had never visited Mars.

That was about to change.

I hadn't talked to Father since he had been escorted into the Needle's elevator the day after our fight aboard the *Goshawk*. He didn't know that I'd resigned from my position as a traffic controller. Why not? I'd been eligible for retirement for ages, and it was long past time I took a chance. Life here had grown stale. I had grown stale, but it took my sister's death to make me realize it. I still didn't know what I would do once I reached Mars, or even if I would settle there or simply use it as a stepping stone to one of the other colonies further out from the sun. But no matter what I did, the decision to leave felt right.

After decades of hiding from who I was, running from every challenge and blaming my past, it felt right to move on. I had been given a rare gift when I underwent the change, an opportunity few human beings would ever receive. I was going to live for centuries.

Or, I might be killed tomorrow.

Either way, I intended to face my life head on. I owed myself that much. ○

Jack Skillingstead reports that he is hard at work on a novel-length version of his story, "Life on the Preservation" (June 2006). In Jack's latest tale for us, the elusive nature of both reality and cats finally becomes clear to Hadley Yeager and this realization gives her one last chance to say . . .

THANK YOU, MR. WHISKERS

Jack Skillingstead

Hadley Yeager was old and widowed and miserable. She hadn't always been that way. She used to be younger and in possession of a breathing husband. Actually, *she* had been the possession. And the misery had been constant and enduring. Now Hadley couldn't find her grocery money. She had hidden it because she was worried about that dark boy breaking in and robbing her. But she couldn't remember *where* she'd hidden it. Hadley was hungry, and if she didn't find the money soon things wouldn't be pleasant. Not that they were, generally.

Hadley sat in the kitchen and cried. Her stomach ached with hunger. Briefly she wished she owned a cat. Franklin (or Soopy, or Mrs. Pussyfoot, or Mr. Whiskers) would rub against her leg and purr and be a comfort. But there would also be the horrid droppings and the sofa shredded, and probably Franklin would make her sneeze. Then she remembered Franklin was the name of her husband (even *his* name sometimes drifted away from her), and she determined to put the whole idea out of her mind.

Hadley started to stand up and a wave of dizziness swelled through her. The room seemed to darken, then it passed and her vision cleared and she stood up more steadily. She would stop crying and fetch the mail. No one normal wrote to her anymore, but, once in a while, among the bills, there was an envelope proclaiming her a WINNER!!!! and these cheered her until she recalled the truth.

She peeked out the curtains first. The street was empty. She put on her coat and let herself out, mumbling, "Be good, Mr. Whiskers," and she pulled the door shut extra hard so the cat wouldn't get away. Cats were clever, but they couldn't open doors that were properly shut.

Hadley's joints ached terribly in the cold. By the time she had hobbled to the mailbox she had almost forgotten what she was doing outside. One time she had become confused walking home from the grocery store.

Everything had looked strange and unfamiliar and she didn't know anyone or what to do. The sky had been white and glaring, and her joints tormented her. Hadley had stood in one place so long, searching for a recognizable sign, that her arm became tired and she dropped the grocery bag, spilling grapes like little green marbles. That was the first time she had become aware of the dark boy. As she started to bend over he had suddenly been there, snatching up her bag with his big brown paw and thrusting it at her. Hadley's heart had quailed, but he simply rode away on his bike, knees pumping as high as his armpits. Watching him swing around the corner she had suddenly recognized the street.

Now Hadley looked back at her house, hoping to see Mr. Whiskers in the window, but he wasn't there. She glanced around, confused, and saw the boy coming. He was wearing his too-big coat and riding his too-small bicycle, wobbling back and forth. At the same instant she remembered that Mr. Whiskers wasn't a real cat and that she lived alone in the house she had once shared with her husband who never touched her during the last decades of their marriage. The house with paint like dead skin flaking and peeling off and the lawn overcome by weeds.

The boy stopped a short distance away and stood straddling his bike and looking at her. She wiped her eyes because she was sad about Mr. Whiskers.

"Hey, lady, are you okay?"

"Of course I am! You're from Honduras." She got Honduras from a picture in one of the *National Geographic* magazines Franklin used to subscribe to, or maybe it was a magazine that had been in the house when she was a child. Pictures and real people and things were all mixed up in Hadley's mind.

"No, I'm not," the dark boy said

"And you're the one spray-painting everything." Hadley's voice quavered. The strangled, threatening loops and knots of paint appeared on fences and signs and even the walls of houses. One had appeared on the wall of her house.

"I don't do that," the boy said, hunched inside his giant purple-blue puffy coat. "That's some dumb little kids."

Hadley sniffed and turned away. Then she squinted, for there were too many mailboxes. She counted them to make sure. The new one was on the end, right next to hers. Somehow it fit on the board under the little moss-covered roof, even though, Hadley felt certain, there hadn't been room. Well. She glanced at the boy, who was still watching her. She didn't want him to rob her but there wasn't anything she could do about it if he did. She decided to grab her mail and hold it in both hands until she got back to her front door.

She quickly opened the mailbox and reached in, keeping her eye on the boy. It was cold inside the box, like the interior of a freezer. Her fingers touched something like a postcard. She pulled it out. A three- by five-inch piece of white cardstock with these words printed neatly in the middle: **LOOK IN THE SOFA CUSHION.**

She had taken it out of the new mailbox by mistake. She started to replace it but didn't. In her own mailbox she found an electric bill and an

advertisement. When she looked up, the dreadful spray-painting boy from Mexico was gone. She closed both mailboxes and was startled to notice the new one now had her name HADLEY etched in gold letters on the door.

LOOK IN THE SOFA CUSHION.

Hadley was preparing tea for her grumbling stomach when her mind made the connection. She shuffled into the living room with her empty cup hanging from a crooked finger. The sofa was almost thirty years old, the floral print faded, the cushions lumpy and compressed. One of the delivery men from The Furniture Mart had pinched his finger backing up the stairs and said "Shit," the only time that word had been spoken in the house, Hadley believed. She remembered wincing and being glad Franklin was at work. The delivery man had been even darker than the spray-painting boy.

She unzipped the cushion on the side where she habitually sat to watch TV. Her hand (like a palsied, sinewy chicken claw) reached in and groped at the crumbling foam until she found the envelope with her grocery money.

Hadley lay awake staring at the ceiling and inhabiting her bone pain. The moon had come in and printed shadows all over. She never could sleep anyway. In her recurring dream a darkspun wicked thing whispered around the doors and windows of her house, seeking entry. A thing made of shadows and poison webs and evil intent. Dreading sleep, dreading the wicked thing, Hadley reached out and turned the lamp on, picked up her glasses and the card from the bedside table.

LOOK IN THE SOFA CUSHION.

The card was real.

She got up and put on her robe and slippers. She retrieved a flashlight from the kitchen and went outside and made her way to the mailbox. The moon was everywhere, and the cold breeze, and rustling sounds. Her slippers scuffed on the pavement, her feet especially ached with the cold. She pointed her flashlight at the new mailbox and saw her name shimmer in gold letters. She hobbled straight to it, hesitated, then pulled open the little door.

The mailbox was full of stars.

She stepped back. All of the night sky seemed to be compressed inside the mailbox, all the star-filled night skies she had ever seen, all the ones she had gazed at when she was a young girl who dreamed and would have liked a kiss, long before she ever met Franklin. (A memory surfaced: standing next to her father in the backyard of the Arlington house while he pointed out constellations and told their mythical stories).

Hadley moved closer, intending to flip the door shut. She was afraid and wanted to go back inside where it was safe. But it seemed wrong to leave the mailbox open. She reached a trembling hand toward the door. Something white floated up among the stars and presented itself to her.

YOUR PAIN IS GONE.

Hadley turned the card over. The back was blank. She started toward

the house, walking spryly, then stopped. Her joints did not hurt. She bent her right leg at the knee. No pain. She clutched the card in her hand and hurried to the house. She felt almost like she could run again!

YOUR BOWELS ARE HEALTHY
YOUR VISION IS PERFECT
YOUR HEATING BILL IS PAID

Franklin had been mean, not at all like her father, who had been a kind, brooding man who liked to gather her in with his big arm and read stories to her—all this goodness ruined when he walked out of the house one evening and never returned; later they found his poor body broken at the foot of the Magnolia Street Bridge. A leap that changed everything, everything, and led eventually to Franklin.

The dark boy lingered on his bicycle in front of Hadley's house. She frowned. Hadley's husband had been mean but he had also, perhaps, been right about "them" ruining the neighborhood. They were like an alien incursion. Such attitudes ran contrary to Hadley's deepest intuitive currents and the sense of fairness her father had instilled. But it was hard always going against Franklin, even if it was only in the silent place inside her heart. And Franklin had been strong, as her father had once seemed to be. Also, what did fairness mean anymore? Her father hadn't been fair when he jumped off the bridge, abandoning her forever. Eventually she came to accept her husband's views. Now here was this one boy always watching her, asking if she was all right. Of course she was all right!

DO YOU WANT HIM TO GO AWAY?

It was the first time the mailbox had asked her a question. She had gone to the box, and the dark boy had been on her mind, his awful spray-painting. And somehow it was as if he were to blame for everything: the old house that was ugly and smelled bad, the bills that baffled her, the arid decades of her marriage, the dreadful wattled thing in the mirror. After thinking about it for two days she turned the card over and carefully printed YES on the back. The next time she looked the mailbox was empty, as if it were waiting for her reply, and she placed the card in it, swung the flag up, but didn't shut the door. The card lay white and innocent, waiting for stars. She wanted to take it back, but a willful, contrary urge made her slap the door shut and walk quickly away.

She peeked between the curtains and watched the boy. He coasted by on his bicycle but stopped just past the mailboxes and rolled backward, using his feet. He stopped the way someone would stop if he had heard his name called. The dark boy looked around, but it was a cold day and he was the only one on the street. Suddenly his head jerked toward Hadley's special mailbox. She couldn't see his face, but something about the way he moved, the attitude of his body, suggested he was afraid. *Don't*, Hadley thought, but it was too late to take the card back, and the boy reached out and opened the mailbox. Something yanked him off his bike. He staggered to one knee, his right hand thrust into the box. He shook his head, dazed or unbelieving. Then the mailbox ate him, jerking him in first by

the arm. He screamed and Hadley heard the scream and would hear it forever after that. The boy's body collapsed into the small aperture. His big puffy coat stripped off him, his legs kicking and jerking. The whole row of mailboxes shuddered violently, doors dropping open, bits of green moss shaking off the little slanted roof. It took only seconds.

Hadley's breath halted in her chest. No one else appeared on the street. The door of Hadley's special mailbox hung open, like the doors of the other five mailboxes. The dark boy's coat lay on the ground, white stuffing foaming out of the torn sleeve.

Hadley was crying and her legs shook as she crossed the street. She closed the mailboxes one at a time, and when she got to her special mailbox there was something waiting for her.

HE WASN'T REAL

She gathered up the puffy coat and all but ran back to her house.

YOU ARE GROWING YOUNGER

It was spring. Hadley was walking. Her bones did not hurt and her head was clear and she was perhaps twenty years younger than she had been two months ago. In this condition she did not feel so afraid of her neighbors and of the world, and she had begun to remember herself, who she had been before everything turned bitter.

She walked by a neatly maintained ranch house with gingerbread trim and a flower garden. Hadley had once kept a garden of her own. She missed it and thought she might start a new one.

A swarthy middle-aged woman, bent over, wearing a sagging green sweater and brown shoes came out the front door of the house and waved to her. Hadley did not know the woman but stopped.

"Oh, you're too young," the woman said. "I thought you were the lady from the white house on the next block."

"I am," Hadley said.

The woman narrowed her eyes at her, then said, "Oh. Well, you don't know me."

Hadley smiled politely.

"But you knew my son." Her voice shook when she said "my son." "I am Mrs. Alvarez. Anita Alvarez, Jonathan's mother."

"I don't—"

"He worried about you," the woman said. "He told me he used to ask if you were all right."

In her mind Hadley saw the puffy coat stuffed behind Franklin's workbench in the basement.

"His grandmother—my mother—died last summer. Her mind was gone. It was hard for Jonathan." Mrs. Alvarez looked away. "He cried so much when she died." Mrs. Alvarez moved her hands vaguely.

"I'm sorry," Hadley said.

Tears spilled down Mrs. Alvarez's cheeks and she did not look at Hadley. "He was a good boy."

HE WASN'T REAL

Hadley did not comprehend this message. She had grown younger and

more vigorous but still she slept like an old woman. Fitfully and in fear of dreams, of the darkspun wicked thing. Her mind was sharp and she remembered herself, her better nature, and she knew Mrs. Alvarez was right: her son *had* been a good boy.

Hadley carefully printed a question on the back of the HE WASN'T REAL card and replaced it in the mailbox. *What do you mean?* she had written. The next day a new card was present.

THIS IS HEAVEN

Thirty-five years later Hadley was depressed and attempting to alleviate that condition by shopping. It was that or the sleeping pills back at the Hotel Chateaubriand. L'Univers D'objets Rares was located on the exclusive Rue Ampère. The dapper man in the neat black zip-suit had brought forth the Martian Fire Crystals and was awaiting her judgment, peeved at Hadley's bored response to the rarities.

A voice spoke inside Hadley's ear. This wasn't surprising in and of itself. Like nearly everyone, she'd had an aural implant injected through her eardrum, and it had bonded bio-molecularly to the incus, malleus, and stapes bones of her middle ear. The device served as a hands-off phone activated by the micro-electrical impulses of her intent. It was also a conduit for automated information, stock market updates, weather, even serialized stories that she would listen to in bed sometimes when she found sleep elusive . . . or too permanently tempting. The stories reminded her distantly of her father's encompassing arm and soothing story time voice.

But she hadn't activated the device. And it hadn't given her a weather report or a newZflash; it had given her advice on which Martian Fire Crystal to purchase.

The crystal on your left is flawed, Hadley.

It was a soft, perfectly modulated masculine voice. The same voice which last night had read her chapter twelve of *Pride and Prejudice*. It *sounded* the same, but it was not the same. And Hadley knew what was speaking to her.

"My mailbox," she said out loud.

The proprietor lifted his eyebrows.

"Incoming call," Hadley said, distracted, then added, "I'll take the one on the right."

When she was outside with her package, she said, "It's you, isn't it?"

"Yes," the voice said.

"I thought you were gone for good."

"No. I'm always here," the voice said.

Hadley sat on a bench in the little park across the street from L'Univers D'objets Rares. A pattern of sunlight and shade swayed over her like an ethereal net. With the passing decades she had gradually allowed the origin of her impossible good fortune to retreat from the presence of her mind. It was difficult to let it come forward again.

"Tell me what you are," she said. "Please."

"That question is more complicated than you might think," the Voice replied. "Simply put: I am you."

"Me!"

"An over-simplification, but yes. You could think of me as your higher-consciousness self, dreaming your new life."

Hadley watched a starling flicker over the uneven brown bricks of the park. Moss almost iridescently green grew thickly in the seams between the bricks. The starling's shadow, a black ripple, glided a little behind the bird.

"I don't believe that," Hadley said.

"You don't have to, of course."

"This can't be a dream."

"It's not a dream such as you are thinking. The world is real. And up until my advent into your ego-consciousness, it was a shared experience."

"And what is it now?"

"I've already told you: Heaven. The only Heaven into which anyone is ever received. Death is the termination of all consciousness, all personal existence. Near the point of its arrival the higher consciousness asserts itself. Hi!"

"I don't understand."

"I built this place from the existing template of the vulgar world, the one you physically inhabit. I *prepared* it for us, Hadley. Because when you cease to live, so do I cease. But nothing ceases here, unless you will it."

"But it isn't real?" Hadley said.

"Is a dream real while you are in it? This world is as real as anything. And it works just like the one you were used to, with one exception: you can have, be, or do anything. It's real so long as you go on believing it is. In *our* world, in Hadley's World, Time is a seeming thing and can stretch to infinity, sustained by a perfectly balanced neurochemical illusion. But we need each other, Hadley, or it won't persist. Nothing will. I made the world, populated it with the shadow-twins of the human race, but *you* bring it alive. So let us be happy. The world is a lovely place now, isn't it?"

"Lovely," she said, her voice a monotone.

Hadley stared across the park at the people on the Rue Ampère and couldn't believe they were mere figments, some kind of second tier Platonic shadows. But that's what the Voice had told her years ago regarding Jonathan Alvarez. Only back then it wasn't even a voice but a few printed words on a card. After a long while Hadley said, "Are you there?"

No answer.

"Hello?"

Nothing. Then a static burst, and: *La température est à Paris un degré de soixante-dix-quatre chauds. . . .*

Heaven.

Decades passed. Or didn't pass. In her New York condo, Hadley crossed her legs and leaned back in the wonderful chair. It reacted to her slightest movements, even the subtle alterations of electrical impulses traveling her nerves, and adjusted for maximum comfort. It was a SmArt chair. A very smart one. Hadley's arm hung languidly over the side, a doparett between her middle fingers unwinding in a fragrant blue thread. Her body was that of a twenty-two-year-old. Her breasts were firm, her legs good, her health excellent, her mind acute. She was wealthy and she was immortal. Two excellent things to be. But Hadley didn't feel excellent and

never had in all the intervening years. Nothing could grant her contentment; it was time to wake up—or go to sleep forever.

“Abandon Heaven?”

Hadley looked up out of her thoughts as the Simulacrum stepped into the room. She preferred Simulacra to the shadow people in her world. This one appeared exactly like a twenty-six-year-old Robert Redford. Its movie star hair fell over its forehead in a thick blond shock. The Simulacrum was a companion, confidant, and the world’s most exquisite vibrator. Not to mention mind reader. Sundance was almost preternaturally alert to Hadley’s moods and needs; he had been engineered that way by shadow twins of human genius. The perfect companion in a world without real companions.

“What do you know about it?” Hadley felt woozy and high.

The Simulacrum smiled. “I always know.”

Hadley stood up and walked to the bubble window that overlooked the upper east side of Manhattan. Ten thousand lights glimmered in the night. Like the stars she used to dream on as a child. Her mind wanted to dissolve and blur into a doparetté haze. Over her shoulder she said, “It’s you, isn’t it. Not the Simulacrum.”

“Yes.”

She wasn’t surprised. “I’m sad.”

“Don’t be.”

She didn’t reply.

Sundance, the Voice, the Mailbox, Hadley herself, whatever, was quiet.

“This is all wrong,” Hadley said.

“It’s right as rain.”

“No.”

Sundance loomed behind her. Hadley stiffened. In the glass she saw its reflection, and then its hands settled on her shoulders and began kneading the tension out of her muscles. She twisted away, dropped the remaining scrap of her doparetté into a disposal iris, and passed her hand over a sensor that transformed the window to permeable status; a breath of night air touched the back of her neck. She started towards the bathroom to shower.

“Please go away,” she said.

The Simulacrum remained at the window, hands clasped behind its back, chin lifted, head slightly cocked.

“You haven’t been yourself,” it observed.

“Who else would I be?”

“An uncertain thing,” the Simulacrum said. “A doubter. An unhappy, cringing, withdrawn creature, dried up and ruined and finished.” It turned from the window and smiled and held its hand out. “What you used to be, Hadley.”

Hadley straightened her skirt. “I know what I was.”

“Then believe in what you *are*. What we are.”

“You only show up when you think I’m going to end it. If you’re my higher self you’re also my worst self.”

It stepped toward her. “I made you young and gave you everything.”

“But you took things, too.”

It stopped. "Took what?"

"I was thinking about Jonathan Alvarez."

"Who?"

Hadley could see the Simulacrum knew perfectly well who Jonathan Alvarez had been.

"The way he screamed when you ate him," she said.

Sundance's smile dimmed slightly.

"So this isn't any kind of heaven," Hadley said. "This is a selfish, ugly place. This isn't heaven and it isn't a dream, either. It's the place where dreams die. It's a bridge."

The smile went completely out. The Simulacrum stepped toward her, and Hadley moved back.

"What does it matter? He was only a product of your fears, and the sentimental story you made for him in our world is just a story. This place we share exists between shaved moments of time. Nothing has happened to that boy."

"It isn't about him," Hadley said. "It's about what you need out of me to go on existing."

"And what do you suppose that is," the Simulacrum said.

"You need me to be like you. Morbidly self-absorbed, so this narcotic world can go on existing."

"That boy was a hundred years ago, relative," Sundance said. "It took you long enough to decide I was bad."

"Well," Hadley sniffed. "I'm not *that* good myself."

"You'll be alone and you'll die alone." The Simulacrum advanced. "There isn't any real Heaven, you know. This is the only way we persist."

"I don't care. I'm alone, anyway."

Sundance reached out for her, wearing its best Redford smile. "Why don't you come to bed now and forget all this sadness."

"No!"

Hadley shoved past the Simulacrum and threw herself at the bubble window. Its permeable molecular arrangement gave way and she fell and tumbled among the ten thousand lights like stars. *Daddy*, she wailed in her mind, *Daddy!*

Hadley sat in the kitchen weeping. The withered sack of her stomach spat acid and growled. She could no longer appease it with hot tea and sugar. Mr. Whiskers rubbed against her orthopedic hose, fur crackling.

"Poor kitty," Hadley muttered. There was nothing left for Mr. Whiskers to eat, either. She reached down to pet him but the cat padded out of the kitchen. Hadley followed him with her rheumy eyes. He planted his forepaws on the sofa cushion and began scratching.

"No, Mr. Whiskers!"

But the cat continued, and Hadley felt too weak to shoo him away. His claws would simply ruin the cushion.

The cushion.

Suddenly she remembered where she had hidden her grocery money. *Thank you, Mr. Whiskers, thank you!* But Mr. Whiskers was only a phantom of her intuition and was gone before she ever stood up. ○

THE MISTS OF TIME

Tom Purdom

In a year of anniversary celebrations, the following story commemorates a particularly significant milestone. Tom Purdom sold his first story "Grieve for a Man" in February 1957 and it appeared exactly fifty years ago in the August issue of *Fantastic Universe*—edited by Hans Stefan Santesson. Tom's second sale hit the stands at the same time, in the August 1957 *Science Fiction Quarterly*, which was edited by Robert Lowndes. Of these two tales, Tom says, "I didn't hear about the second sale until the magazine came out, so I've always considered the *Fantastic Universe* story my first sale. The first chapter of the literary memoir I'm in the process of posting at www.philart.net/tompurdom discusses both stories. I've also posted "Grieve for a Man," in case any *Asimov's* readers would like to see what my first appearance in print looked like." Tom tells us 1957 was important to him for other reasons as well. "It was the year the Russians launched Sputnik. I had been a space travel enthusiast since I was fourteen (I actually became interested in space travel before I started reading SF). Sputnik probably had a permanent effect on my personality. I belonged to one of the last groups to grow up hearing our elders tell us space travel was impossible. Sputnik proved we younger people knew what we were talking about. In one year, I sold my first story, reached full legal adulthood, met my wife, and acquired a permanent, possibly insufferable, confidence in my own judgment."

The cry from the lookout perked up every officer, rating, and common seaman on deck. The two masted brig they were intercepting was being followed by sharks—a sure sign it was a slaver. Slave ships fouled the ocean with a trail of bodies as they worked their way across the Atlantic.

John Harrington was standing in front of the rear deckhouse when the midshipman's yell floated down from the mast. His three officers were loitering around him with their eyes fixed on the sails three miles off their port bow—a mass of wind filled cloth that had aroused, once again, the hope that their weeks of tedious, eventless cruising were coming to an end.

The ship rolling under their own feet, *HMS Sparrow*, was a sixty-foot schooner—one of the smallest warships carried on the rolls of Her Majesty's navy. There was no raised quarterdeck her commander could pace in majestic isolation. The officers merely stood in front of the deckhouse and looked down a deck crowded with two boats, spare spars, and the sweating bodies of crewmen who were constantly working the big triangular sails into new positions in response to the shipmaster's efforts to draw the last increment of movement from the insipid push of the African coastal breezes. A single six-pound gun, mounted on a turntable, dominated the bow.

Sub-Lieutenant Bonfors opened his telescope and pointed it at the other ship. He was a broad, well padded young man and he beamed at the image in his lenses with the smile of a gourmand who was contemplating a particularly interesting table.

"*Blackbirds*, gentlemen. She's low in the water, too. I believe a good packer can squeeze five hundred prime blackbirds into a hull that long—twenty-five hundred good English pounds if they're all still breathing and pulsing."

It was the paradox of time travel. You were there and you weren't there, the laws of physics prohibited it and it was the laws of physics that got you there. You were the cat that was neither dead nor alive, the photon that could be in two places at once, the wave function that hadn't collapsed. You slipped through a world in which you could see but not be seen, exist and not exist. Sometimes there was a flickering moment when you really were there—a moment, oddly enough, when they could see you and you couldn't see them. It was the paradox of time travel—a paradox built upon the contradictions and inconsistencies that lie at the heart of the sloppy, fundamentally unsolvable mystery human beings call the physical universe.

For Emory FitzGordon the paradox meant that he was crammed into an invisible, transparent space/time bubble, strapped into a two-chair rig shoulder to shoulder with a bony, hyperactive young woman, thirty feet above the tepid water twenty miles off the coast of Africa, six years after the young Princess Victoria had become Queen of England, Wales, Scotland, Ireland, and all the heathen lands Her government ruled beyond the seas. The hyperactive young woman, in addition, was an up and-coming video auteur who possessed all the personality quirks traditionally associated with the arts.

"Four minute check completed," the hal running the bubble said. "Conditions on all four coordinates register satisfactory and stable. You have full clearance for two hours, provisional clearance for five hours."

Giva Lombardo's hands had already started bustling across the screen-bank attached to her chair. The cameras attached to the rig had started recording as soon as the bubble had completed the space/time relocation. Giva was obviously rearranging the angles and magnifications chosen by the hal's programming.

"It didn't take them long to start talking about that twenty-five hundred pounds, did it?" Giva murmured.

John Harrington glanced at the other two officers. A hint of mischief flickered across his face. He tried to maintain a captainly gravity when he was on deck but he was, after all, only twenty-three.

"So how does that break down, Mr. Bonfors?"

"For the slaves alone," the stout Sub-Lieutenant said, "*conservatively*, it's two hundred and sixty pounds for you, eighty-nine for your hard working first lieutenant, seventy-two for our two esteemed colleagues here, sixteen for the young gentleman in the lookout, and two and a half pounds for every hand in the crew. The value of the ship itself might increase every share by another fifth, depending on the judgment of our lords at the Admiralty."

The sailing master, Mr. Whitjoy, rolled his eyes at the sky. The gunnery officer, Sub-Lieutenant Terry, shook his head.

"I see there's one branch of mathematics you seem to have thoroughly mastered, Mr. Bonfors," Terry said.

"I may not have your knowledge of the calculus and other arcane matters, Mr. Terry," Bonfors said, "but I know that the quantity of roast beef and claret a man can consume is directly related to the mass of his purse."

Harrington raised his head. His eyes ranged over the rigging as if he were inspecting every knot. It would take them two hours—perhaps two and a half—to close with the slave ship. *Sparrow* was small and lightly armed but he could at least be thankful she was faster than her opposition. Most of the ships the Admiralty assigned to the West African anti-slavery squadron were two-masted brigs that wallowed through the water like sick whales.

How would they behave when the shooting started? Should he be glad they were still bantering? This would be the first time any of them had actually faced an armed enemy. Mr. Whitjoy was a forty-year-old veteran of the struggle against the Corsican tyrant, but his seagoing service had been limited to blockade duty in the last three years of the Napoleonic wars. For the rest of them—including their captain and all the hands—"active service" had been a placid round of uneventful cruises punctuated by interludes in the seamier quarters of foreign ports.

"We'll keep flying the Portuguese flag until we come into range," Harrington said. "We still have a bit of ship handling ahead of us. We may sail a touch faster than an overloaded slaver but let's not forget they have four guns on each side. Let's make sure we're positioned straight across their bow when we bring them to, Mr. Whitjoy."

* * *

Giva had leaped on the prize money issue during their first planning session. She hadn't known the British sailors received special financial bonuses when she had applied for the job. She had circled around the topic, once she became aware of it, as if she had been tethered to it with a leash.

The scholar assigned to oversee the project, Dr. Peter LeGrundy, was a specialist in the cultural and social history of the Victorian British Empire. Peter claimed he normally avoided the details of Victorian military history—a subject his colleagues associated with excessive popular appeal—but in this case he had obviously had to master the relevant complexities. The ships assigned to the West African anti-slavery patrol had received five pounds for every slave they liberated, as a substitute for the prize money they would have received if they had been fighting in a conventional nation-state war. Prize money had been a traditional wartime incentive. The wages the Crown paid its seaborne warriors had not, after all, been princely. The arbitrary five pound figure had actually been a rather modest compensation, in Peter's opinion, compared to the sums the *Sparrow's* crew would have received in wartime, from a cargo the government could actually sell.

Peter had explained all that to Giva—several times. And received the same reaction each time.

"There were five hundred captives on that ship," Giva said. "Twenty-five hundred pounds would be what—two or three million today? Audiences aren't totally stupid, Peter. I think most of them will manage to see that the great anti-slavery crusade could be a very profitable little business."

John Harrington had been reading about the Napoleonic Wars ever since his youngest uncle had given him a biography of Lord Nelson for his ninth birthday. None of the books he had read had captured the stately tempo of naval warfare. He knew the British had spent three hours advancing toward the Franco-Spanish fleet at Trafalgar, but most authors covered that phase of the battle in a handful of paragraphs and hurried straight to the thunder that followed. Lieutenant Bonfors and Lieutenant Terry both made two trips to their quarters while *Sparrow* plodded across the gentle African waves toward their quarry. They were probably visiting their chamberpots, Harrington presumed. Mr. Whitjoy, on the other hand, directed the handling of the ship with his usual stolid competence. Harrington thought he caught Whitjoy praying at one point, but the master could have been frowning at a patch of deck that needed a touch of the holystone.

Harrington had stifled his own urge to visit the chamberpot. He had caught two of the hands smiling the second time Bonfors had trudged off the deck.

It had been Midshipman Montgomery who had spotted the sharks. The other midshipman, Davey Clarke, had replaced Montgomery in the lookout. Montgomery could have gone below, but he was circling the deck instead. He stopped at the gun every few minutes and gave it a thorough

inspection. Montgomery would be assisting Mr. Terry when the time came to open fire.

Giva had started defending her artistic integrity at the very beginning of her pre-hiring interview. "I get the final edit," Giva had advised the oversight committee. "I won't work under any other conditions. If it's got my name on it, it represents my take on the subject."

Giva had been in Moscow, working on a historical drama. Emory had been staring at seven head-and-shoulder images on his living room imagining stage and Giva had been the only participant in the montage who had chosen a setting that accented her status. All the other participants had selected neutral backdrops. Giva had arranged herself so the committee could see, just beyond her shoulder, two actors who were dressed in flat, twenty-first century brain-link hats.

"There's one thing I absolutely have to say, Mr. FitzGordon," Giva said. "I appreciate your generosity. I will try to repay you by turning out the best possible product I can. But please don't think you can expect to have any influence on the way I do it. I'm not interested in creating public relations fog jobs for wealthy families."

Emory had listened to Giva's tirade with the thin, polite smile a tolerant parent might bestow on a child. "I wouldn't expect you to produce a fog job," Emory responded. "I believe the facts in this case will speak for themselves. I can't deny that I specified this particular incident when I offered the agency this grant partly because my ancestor was involved in it. I wouldn't have known the Royal Navy had engaged in an anti-slavery campaign if it hadn't been part of our family chronicles. But I also feel this episode is a typical example of the courage and devotion of a group of men who deserve to be remembered and honored. The crews of the West African anti-slavery patrol saved a hundred thousand human beings from slavery. They deserve a memorial that has been created by an honest, first-class artist."

The committee had already let Emory know Giva Lombardo was the candidate they wanted to hire. Giva had friends in the Agency for Chronautical Studies, it seemed.

She also had ability and the kind of name recognition that would attract an audience. Emory had been impressed with both the docs that had catapulted Giva out of the would-be class. The first doc had been a one hour essay on women who bought sexually enhancing personality modifications. The second had been a rhapsodic portrait of a cruise on a fully automated sailing ship. The cruise doc was essentially an advertisement funded by the cruise company, but it had aroused the enthusiasm of the super-aesthete audience.

Emory's family had been dealing with artists for a hundred and fifty years. His great-grandfather's encounter with the architect who designed his primary residence was a standard item in popular accounts of the history of architecture. It had become a family legend encrusted with advice and observations. *All interactions between artists and the rich hinge on one basic fact, Emory's great-grandfather had said. You need the creatives. The creatives need your money.*

* * *

Harrington placed his hands behind his back. The approach was coming to an end. Mr. Whitjoy had placed *Sparrow* on a course that would cross the slaver's bow in just four or five minutes.

He took a deep breath and forced the tension out of his neck muscles. He was the captain of a ship of war. He must offer his crew a voice that sounded confident and unperturbed.

"Let's show them our true colors, Mr. Whitjoy. You may advise them of our request as soon as we start to raise our ensign, Mr. Terry."

Lieutenant Bonfors led the boarding party. The slaver hove to in response to Lieutenant Terry's shot across its bow and Lieutenant Bonfors settled his bulk in the stern of a longboat and assumed a rigid, upright dignity that reminded Emory of the recordings of his great-grandfather he had viewed when he had been a child. Harrison FitzGordon had been an ideal role model, in the opinion of Emory's father. He was courteous to everyone he encountered, according to the family catechism, but he never forgot his position in society. He always behaved like someone who assumed the people around him would treat him with deference—just as Lieutenant Bonfors obviously took it for granted that others would row and he would be rowed.

Bonfors maintained the same air of haughty indifference when he hauled himself aboard the slaver and ran his eyes down its guns. Two or three crewmen were lounging near the rear of each gun. Most of them had flintlock pistols stuck in their belts.

A tall man in a loose blue coat hurried across the deck. He held out his hand and Bonfors put his own hands behind his back.

"I am Sub-Lieutenant Barry Richard Bonfors of Her Majesty's Ship *Sparrow*. I am here to inspect your ship and your papers in accordance with the treaties currently in effect between my government and the government of the nation whose flag is flying from your masthead."

"I am William Zachary," the officer in the blue coat said, "and I am the commander of this ship. If you will do me the honor of stepping into my cabin, I will be happy to present you with our papers."

"I would prefer to start with an inspection of your hold."

"I'm afraid that won't be possible, Sub-Lieutenant. I assure you our papers will give you all the information you need."

"The treaties in effect between our countries require the inspection of your entire ship, sir. I would be neglecting my duties if I failed to visit your hold."

Captain Zachary gestured at the guns. "I have two twelve pound guns and two eighteen pounders on each side of my ship, Sub-Lieutenant. You have, as far as I can tell, one six pounder. I have almost fifty hands. What do you have? Twenty-five? And some of them boys? I'm certain a visit to my cabin and an inspection of my papers will provide you with a satisfactory report to your superiors. As you will see from our papers, our hold is stuffed with jute and bananas."

Zachary was speaking with an accent that sounded, to Emory's ear, a lot like some of the varieties of English emitted by the crew on the *Spar-*

row. Giva's microphone arrangement had picked up some of the cries coming from the slaver's crew as Bonfors had made his progress across the waters, and Emory had heard several examples of the best known English nouns and verbs. The ship was flying a Brazilian flag, Emory assumed, because it offered the crew legal advantages they would have missed if they had sailed under their true colors. British citizens who engaged in the slave trade could be hanged as pirates.

The legal complexities of the anti-slavery crusade had been one of the subjects that had amused Emory when he had been a boy. The officers of the West African Squadron had operated under legal restrictions that were so complicated the Admiralty had issued them an instruction manual they could carry in their uniforms. The Royal Navy could stop the ships of some nations and not others, and it could do some things on one country's ships and other things on others.

Emory had been five when he had first heard about John Harrington's exploits off the African coast. Normally the FitzGordon adults just mentioned it now and then. You were reminded you had an ancestor who had liberated slaves when your elders felt you were spending too much time thinking about some of the other things your ancestors had done, such as their contributions to the coal mining and timber cutting industries. In Emory's case, it had become a schoolboy enthusiasm. He had scoured the databanks for information on Lieutenant John Harrington and the great fifty year struggle in which Harrington had participated. Almost no one outside of his family had heard about the Royal Navy's anti-slavery campaign, but the historians who had studied it had all concluded it was one of the great epics of the sea. Young officers in small ships had fought the slavers for over half a century. They had engaged in hotly contested ship to ship actions. They had ventured up the rivers that communicated with the interior and attacked fortified slaveholding pens. Thousands of British seamen had died from the diseases that infested the African coast. The African slave markets north of the equator had been shut down. One hundred thousand men, women, and children had been rescued from the horrors of the slave ships.

The campaign had been promoted by a British politician, Lord Palmerston, who had tried to negotiate a general international treaty outlawing the slave trade. Palmerston had failed to achieve his goal and British diplomats had been forced to negotiate special agreements country by country. The officers on the spot were supposed to keep all the agreements straight and remember they could be fined, or sued, if they looked in the wrong cupboard or detained the wrong ship.

In this case, the situation was relatively straightforward. The ship was flying the flag of Brazil, and the *Sparrow* therefore had the right to examine its papers and search its hull. If the searchers found any evidence the ship was engaging in the slave trade—such as the presence of several hundred chained Africans—the *Sparrow* could seize the slaver and bring the ship, its crew, and all its contents before the courts the navy had established in Freetown, Sierra Leone.

"Look at that," Emory said. "Look at the way he's handling himself."

Bonfors had turned his back on Captain Zachary. He was walking to-

ward the ladder on the side of the ship with the same unhurried serenity he had exhibited when he came aboard.

Did Bonfors's back itch? Was he counting the number of steps that stretched between his present position and the minimal safety he would enjoy when he reached the boat? For Emory it was a thrilling moment—a display of the values and attitudes that had shaped his own conduct since he had been a child. Most of the officers on the *Sparrow* shared a common heritage. Their family lines had been molded, generation after generation, by the demands of the position they occupied in their society.

"You are now provisionally cleared for six hours total," the hal said. "All coordinates register satisfactory and stable."

The slaver was turning. Harrington noted the hands in the rigging making minor adjustments to the sails and realized the slaver's bow was shifting to the right—so it could bring its four starboard guns to bear on *Sparrow*.

Mr. Whitjoy had seen the movement, too. His voice was already bellowing orders. He had been told to hold *Sparrow* lined up across the slaver's bow. He didn't need further instructions.

Conflicting courses churned across Harrington's brain. Bonfors had re-boarded his boat and was still crossing the gap between the ships. The slave ship couldn't hit the boat with the side guns, but it had a small chaser on the bow—a four pounder that could shatter the boat with a single lucky shot. The wind favored the slaver, too. The two ships had hove to with the wind behind the slaver, hitting its sails at a twenty degree angle. . . .

He hurried down the narrow deck toward the bow. Terry and Montgomery both looked at him expectantly. The swivel gun was loaded with chain shot. The slow match smoldered in a bucket.

"Let's give our good friend Mr. Bonfors time to get aboard," Harrington said.

"Aren't you afraid they'll fire on the boat with their chaser?" Montgomery said. "Sir."

Terry started to say something and Harrington stopped him with his hand. Montgomery should have kept his thoughts to himself, but this wasn't the time to rebuke him.

"It's obvious Mr. Bonfors didn't finish the inspection," Harrington said. "But we won't be certain they refused to let him go below until he makes his report. We don't want to give the lawyers any unnecessary grounds for complaint."

He glanced around the men standing near the gun. "Besides, everybody says these slavers tend to be poor shots. They're businessmen. They go to sea to make money."

He paused for what he hoped would be an effect. "We go to sea to make war."

Montgomery straightened. Harrington thought he saw a light flash in the eyes of one of the seamen in the gun crew. He turned away from the gun and made his way toward the stern with his hands behind his back, in exactly the same pose his second commanding officer, Captain Ferris,

would have assumed. A good commander had to be an actor. Good actors never ruined an exit line with too much talk.

Emory had started campaigning for Giva's removal a week after he'd audited the first planning meeting. Giva had nagged at the prize money issue for a tiresome fifteen minutes at the end of the fourth meeting and Emory had maintained his link to Peter LeGrundy after she had exited. Giva had still been in Russia at that state of their association. Emory was staying at his New York residence, where he was sampling the opening premieres of the entertainment season. Peter had based himself in London, so he could take a firsthand look at the Royal Navy archives.

"Are you really sure we can't do anything about her supporters in the chronautical bureaucracy?" Emory said. "It seems to me there should be some *small* possibility we can overcome their personal predilections and convince them she has a bias that is obviously incompatible with scholarship. A ten minute conversation with her would probably be sufficient."

"She's peppery, Emory. She feels she has to assert herself. She's young and she's an artist."

"And what's she going to be like when she's actually recording? We'll only have one opportunity, Peter—the only opportunity anybody will ever have. Whatever she records, that's it."

Under the rules laid down by the chrono bureaucrats, the *Sparrow's* encounter with the slaver was surrounded by a restricted zone that encompassed hundreds of square miles of ocean and twenty hours of time. No one knew what would happen if a bubble entered a space/time volume occupied by another bubble—and the bureaucrats had decided they would avoid the smallest risk they would ever find out. The academics and fundraisers who had written the preamble to the agency's charter had decreed that its chrononauts would "dispel the mists of time with disciplined onsite observations," and the careerists and political appointees who ran the agency had decreed each site would receive only one dispelling. Once their bubble left the restricted zone, no one else would ever return to it.

"She's what they want," Peter said. "I've counted the votes. There's only one way you can get her out of that bubble—withdraw your grant and cancel the project."

"And let the media have a fiesta reporting on the rich idler who tried to bribe a committee of dedicated scholars."

Peter was being cautious, in Emory's opinion. He could have changed the committee's mind if he had made a determined effort. Giva had flaunted her biases as if she thought they were a fashion statement. But Peter also knew he would make some permanent enemies among the losing minority if he pressed his case.

Peter was a freelance scholar who lived from grant to grant. He had never managed to land a permanent academic position. He was balancing two forces that could have a potent impact on his future: a rich individual who could be a fertile source of grants and a committee composed of scholars who could help him capture a permanent job.

Emory could, of course, offer Peter some inducements that might over-

come his respect for Giva's supporters. But that was a course that had its own risks. You never knew when an academic might decide his scholarly integrity had to be asserted. In the end, Emory had adopted a more straightforward approach and applied for a seat in the bubble under the agency's Chrono Tourist program. The extra passenger would cost the agency nothing and the fee would increase his grant by 30 percent. Giva would still control the cameras on the bubble, but he could make his own amateurish record with his personal recording implant. He would have evidence he could use to support any claim that she had distorted the truth.

Harrington could have leaned over the side of the ship and called for a report while Bonfors was still en route, but he was certain Captain Ferris would never have done that. Neither would Nelson. Instead, he stood by the deckhouse and remained at his post while Bonfors climbed over the side, saluted the stern, and marched across the deck.

"He threatened me," Bonfors said. "He pointed at his guns and told me I could learn all I needed to know from his account books."

"He refused to let you visit the hold?"

"He told me I could learn all I needed from his books. He told me he had eight guns and fifty hands and we only had one gun and twenty-five."

Harrington frowned. Would a court interpret that as a threat? Could a lawyer claim Bonfors had deliberately misinterpreted the slave captain's words?

"It was a clear refusal," Bonfors said. "He gave me no indication he was going to let me inspect the hold."

Harrington turned toward the gun. He sucked in a good lungful and enjoyed a small pulse of satisfaction when he heard his voice ring down the ship.

"You may fire at your discretion, Mr. Terry."

Montgomery broke into a smile. Terry said something to his crew and the lead gunner drew the slow match from its bucket.

Terry folded his arms over his chest and judged the rise and fall of the two ships. Chain shot consisted of two balls, connected by a length of chain. It could spin through the enemy rigging and wreak havoc on any rope or wood that intersected its trajectory.

Terry moved his arm. The lead gunner laid the end of the match across the touchhole.

It was the first time in his life Harrington had stood on a ship that was firing on other human beings. It was the moment he had been preparing for since he had been a twelve-year-old novice at the Naval School at Portsmouth, but the crash of the gun still caught him by surprise.

Montgomery was standing on tiptoe staring at the other ship. Terry was already snapping out orders. The sponger was pulling his tool out of its water bucket. Drill and training were doing their job. On the entire ship, there might have been six men who could feel the full weight of the moment, undistracted by the demands of their posts—and one of them was that supreme idler, the commanding officer.

The slaver's foremast quivered. A rip spread across a topsail. Bonfors

pulled his telescope out of his coat and ran it across the slaver's upper rigging.

"I can see two lines dangling from the foretopsail," Bonfors said.

Harrington was playing his own telescope across the slaver's deck. Four men had gathered around the bowchaser. The two ships were positioned so the slaver's ball would hit the *Sparrow* toward the rear midships—a little forward of the exact spot where he was standing.

He had assumed they should start by destroying the slaver's sails. Then, when there was no danger their quarry could slip away, they could pick it off at their leisure, from positions that kept them safe from its broadsides. Should he change that plan merely because he was staring at the muzzle of the enemy gun? Wouldn't it make more sense to fire at the gun? Even though it was a small, hard-to-hit target?

It was a tempting thought. The slavers might even strike their colors if the shot missed the stern gun and broke a few bodies as it hurtled down the deck.

It was a thought generated by fear.

"Well started, Mr. Terry. Continue as you are."

The slaver's gun flashed. There was a short pause—just time enough to feel himself stiffen—and then, almost simultaneously, his brain picked up the crash of the gun and the thud of the ball striking the side of *Sparrow's* hull.

The ball had hit the ship about where he had guessed it would. If it had been aimed a few degrees higher, it would have crossed the deck three steps to his right.

The *Sparrow's* gun fired its second shot moments after the slaver's ball hit the hull. The sponger shoved his tool down the gun barrel, the crew fell into their drill, and the *Sparrow* hurled a third ball across the gap while the slaver's crew was still loading their second shot.

"The slaver's got a crew working on the rear boat," Giva said.

Emory had been watching the two gun crews and looking for signs they were actually creating some damage. The third shot from the *Sparrow's* gun had drawn an excited, arms-raised leap from the midshipman posted with the gun crew. The upper third of the slaver's forward mast had bounced away from the lower section, and sagged against the rigging.

Harrington's report to the Admiralty said the slaver had brought out a boat and used it to pull the ship around, to bring its broadside into play. Harrington hadn't said when they had lowered the boat. Emory had assumed they had done it after the battle had raged for awhile.

"It looks like they're going to lower it on the other side of their ship," Emory said. "Is that going to cause any problems?"

"The rotation program can correct for most of the deficiencies. We can always have a talking head explain some of the tactics—some professor who's goofy about old weapons. We could even have you do it, Emory. You probably know more about the anti-slavery patrol than Peter and all the rest of the committee combined. That could be a real tinger—the hero's descendant talking about the ancestor he hero-worshipped as a boy. After he had actually seen him in action."

* * *

Harrington was making another calculation. The slaver's boat was pulling the slaver's bow into the wind. There was no way Mr. Whitjoy could stay with the bow as it turned and avoid a broadside. Should he pull out of range, circle around, and place *Sparrow* across the enemy's stern? Or should he hold his current position, take the broadside, and inflict more damage on their sails?

The blow to the slaver's mast had weakened its sailing capabilities but it wasn't decisive. He wanted them dead in the water—totally at his mercy.

The slaver's bow gun was already pointing away from *Sparrow*. There would be a period—who knew how long?—when *Sparrow* could fire on the slaver and the slaver couldn't fire back.

"Hold position, Mr. Whitjoy. Keep up the good work, Mr. Terry."

Harrington was holding his pocket watch in his hand. The swivel gun roared again and he noted that Terry's crew was firing a shot every minute and twenty seconds.

He put his hands behind his back and watched the enemy ship creep around. It was all a matter of luck. The balls from the slaver's broadside would fly high or low—or pass over the deck at the height of a young commander's belly. They would intersect the place where you were standing or pass a few feet to your right or left. The odds were on your side.

And there was nothing you could do about it.

Bonfors glanced back. He saw what Harrington was doing and resumed his telescopic observations of the enemy ship.

Terry's crew fired three more times while the slaver made its turn. The second shot cut the broken topmast free from its support lines and sent it sliding through the rigging to the deck. The third shot slammed into the mainmast with an impact that would have made every captive in the hold howl with joy if they could have seen the result—and understood what it meant. The top of the mast lurched to the right. The whole structure, complete with spars and furled sails, toppled toward the deck and sprawled over the slaver's side.

Harrington felt himself yield to an uncontrollable rush of emotion. "*Take her about, Mr. Whitjoy! Take us out of range.*"

Whitjoy barked orders. Hands raced to their stations. The big triangular main sail swung across *Sparrow's* deck. The hand at the wheel adjusted the angle of the rudder and Harrington's ship began to turn away from the wind.

Some of the crew on the other ship had left their guns and rushed to the fallen sail. With luck, one or two of their compatriots would be lying under the wreckage.

If there was one virtue the Navy taught you, it was patience. You stood your watches, no matter how you felt. You endured storms that went on and on, for days at a time, without any sign they were coming to an end. You waited out calms. And now you locked yourself in your post and watched the elephantine motions of the ships, as *Sparrow* turned away from the wind, and the muzzles of the enemy guns slowly came to bear on the deck you were standing on. . . .

The flash of the first gun caught him by surprise. He would have waited at least another minute before he fired if he had been commanding the other ship. A huge noise whined past Sparrow's stern. The second gun lit up a few seconds later, and he realized they were firing one gun at a time.

This time the invisible Thing passed over his head, about fifty feet up. Mr. Terry fired the swivel gun and he heard Montgomery's treble shout a word of encouragement at the ball.

The slaver hurled its third shot. A tremendous bang shook the entire length of *Sparrow's* hull. He looked up and down the deck, trying to find some sign of damage, and saw Montgomery covering his face with both hands.

A gunner grabbed Montgomery's shoulders. Terry stepped in front of the boy and seized his wrists. The rest of the gun crew gathered around.

"Mr. Bonfors—please see what the trouble is. See if you can get the gun back in action."

Bonfors shot him one of the most hostile looks he had ever received from another human being. It only lasted a moment but Harrington knew exactly what his second in command was thinking. The captain had seen an unpleasant duty and passed it to the appropriate subordinate. They both knew it was the right thing to do—the only thing a captain *could* do—but that didn't alter the basic fact that the coldhearted brute had calmly handed you a job that both of you would have given almost anything to avoid.

A crewman was standing by the railing near the bow. He pointed at the railing and Harrington understood what had happened. The big bang had been a glancing blow from a cannonball. Wooden splinters had flown off the rail at the speed of musket balls. One of the splinters had apparently hit Montgomery in the face.

"It looks like we now know who Montgomery is," Emory said.

Giva was looking at a rerun on her display. "I got it all. The camera had him centered the whole time. I lost him when they all crowded around him. But I got the moment he was hit."

Lieutenant Bonfors had reached the gun and started easing the crew away from Montgomery with a mixture of jovial comments and firm pushes. "Let's keep our minds on our work, gentlemen. Take Mr. Montgomery to the captain's cabin, Hawksbill. I believe we've got time for one more shot before we pull away from our opponent, Mr. Terry."

Their planning sessions had contained one moment of pure harmony. They had all agreed Giva would have two cameras continuously tracking both midshipmen. They knew one of the boys was going to be hit but they didn't know which one. They knew the boy was referred to as Mr. Montgomery in Harrington's report but they didn't know what he looked like or when it would happen. They only knew *Mr. Montgomery and Mr. Clarke acquitted themselves with courage and competence. I regret to report that Mr. Montgomery has lost the sight of his left eye. He is bearing his misfortune with commendable cheerfulness.*

Sparrow put a solid half mile between its stern and the slaver before it

turned into a long, slow curve that ended with it bearing down on the slaver's stern. The men in the slaver's boat tried to turn with it, but Mr. Whitjoy outmaneuvered them. The duel between sail power and oar power came to an abrupt end as soon as *Sparrow* drew within firing range. Harrington ordered Terry to fire on the boat, the second shot raised a fountain of water near the boat's bow, and every slaver in the boat crew lunged at the ladder that hung from the side of their ship.

Bonfors chuckled as he watched them scramble onto the deck. "They don't seem to have much tolerance for being shot at, do they?"

Harrington was eyeing the relative positions of the two ships. In another five minutes *Sparrow* would be lying directly behind the slaver's stern, poised to hurl ball after ball down the entire length of the other ship.

"You may fire at the deck as you see fit, Mr. Terry. We'll give them three rounds. And pause to see if they strike."

"They're opening the hatch," Emory said.

Captain Zachary and four of his men were crouching around the hatch in the center of the slave ship. They had drawn their pistols and they were all holding themselves close to the deck, in anticipation of the metal horror that could fly across their ship at any moment.

The four crewmen dropped through the hatch. Captain Zachary slithered backward and crouched on one knee, with his pistol clutched in both hands.

Harrington threw out his arm as soon as he saw the first black figures stumble into the sunlight. "Hold your fire, Mr. Terry."

The slavers had arranged themselves so he could enjoy an unobstructed view of the slaves. The Africans were linked together with chains, but the captain and his crew were still training guns on them. Two of the slaves slumped to the deck as they came out of the hold. Their companions picked them up and dragged them away from the hatch.

"I'd say a third of them appear to be women," Bonfors said.

Harrington raised his telescope and verified Bonfors' estimate. One of the women was holding a child.

He lowered his telescope and pushed it closed. "Organize a boarding party, Mr. Bonfors. I will lead it. You will take command of the ship."

"My God," Emory said. "He didn't waste a second."

They had known what Harrington was going to do. It was in his report. But nothing in the written record had prepared Emory for the speed of his decision.

I ascertained that we could no longer punish their crew with our gun, Harrington had written, and I therefore determined to take their ship by assault, with one of our boats. The presence of the unfortunate innocents meant that our adversaries could repair their masts before our very eyes and perhaps slip away in the night. There was, in addition, the danger they would adopt the infamous course others have taken in such a situation and avoid prosecution by consigning their cargo to the sea.

* * *

Terry volunteered at once. Davey Clarke wanted to go, but Harrington decreed they couldn't risk another midshipman.

"We'd have a fine time keeping the ship afloat with both of our young gentlemen laid up, Davey."

The hands obviously needed encouragement. Four men stepped forward. The expressions on the rest of them convinced Harrington he had to give Bonfors some support.

"A double share for every man who volunteers," Harrington called out. "Taken from the captain's portion."

A ball from the slaver's stern gun ploughed into the water forty feet from *Sparrow's* port side. Bonfors' arm shot toward the splash while it was still hanging over the waves. "It's the easiest money you'll ever earn, lads. You've seen how these fellows shoot."

In the end, fifteen men shuffled up to the line. That would leave ten on the *Sparrow*—enough to get the ship back to port if worst came to worst.

Giva smiled. "He just doubled their profit, didn't he? He didn't mention that in his report."

Harrington placed himself in the front of the boat. Terry sat in the back, where the ranking officer would normally sit.

Their positions wouldn't matter that much during the approach. The slavers would be firing down from the deck. They would all be equally exposed. When they initiated the assault, however, he had to be in front. The whole enterprise might fail if he went down—but it was certain to fail if the men felt their captain was huddling in the rear. The assault had been his idea, after all.

They had boarded the boat on *Sparrow's* starboard side, with *Sparrow's* hull between them and the enemy guns. For the first few seconds after Terry gave the order, they traveled along the hull. Then they cleared the bow.

And there it was. There was nothing between him and the stern gun of the enemy ship but a hundred yards of sunlight and water.

Terry was supposed to steer them toward the rear of the slaver's starboard side. They had agreed he would aim them at a point that would accomplish two objectives. He would keep the boat outside the angle the slaver's broadside could cover and he would minimize the time they would spend inside the stern gun's field of fire. Terry was the best man to hold the tiller. No one on *Sparrow* had a better understanding of the strengths and limitations of nautical artillery.

They had overcome their boat's initial resistance as they had slid down *Sparrow's* hull. Terry called out his first firm "*Stroke!*" and the bow shot toward its destination. Terry gave the rowers two cycles of *stroke* and *lift* at a moderate pace. Then he upped the pace and kept increasing it with every cycle.

Every push of the oars carried them out of the danger presented by the stern gun. But it also carried them toward the armed men who were crowding around the rail.

Harrington's hands tightened on the weapons he was holding—a pistol

in his right hand, a cutlass in his left. He was keeping his fingers on the butt of the pistol, well away from the trigger and the possibility he would fire the gun by accident and leave himself one bullet short and looking like a fool. Two more pistols were tucked into his belt, right and left. The men behind him were all equipped with two pistols, two loaded muskets wrapped in oilcloth, and a cutlass laid across their feet.

The stern gun flashed. The impulse to squeeze himself into a package the size of his hat seemed irresistible but he focused his eyes on the side of the slaver and discovered he could hold himself fixed in place until he heard the bang of the gun reaching him from a distance that seemed as remote as the moons of Jupiter.

"Stroke . . . lift . . . stroke . . . lift."

Was there anything more beautiful than the crash of a gun that had just fired in your direction? The noise had made its way across the water and you were still alive. You could be certain four pounds of iron had sailed harmlessly past you, instead of slamming into your bones or knocking holes in your boat and mutilating your shipmates.

"That should be the last we'll hear from that thing," a voice muttered behind him.

"I should hope so," a brasher voice said. "Unless these darkiewhippers have picked up some pointers from Mr. Terry in the last half hour."

The second voice belonged to a hand named Bobby Dawkins—a veteran in his fourth decade who was noted for his monkeyish agility and the stream of good-natured comments he bestowed on everything that happened around him. Dawkins had been the first man to volunteer after Harrington had augmented the cash reward.

Armed men were lining up along the rail of the slave ship. More men were falling in behind them.

Emory ran his eyes down the rail, picking out faces that looked particularly vicious or threatening. He had begun his recording as a weapon in his contest with Giva, but he was beginning to think along other lines. He wanted a personal record of this—the kind of record a tourist would make. It wouldn't be as sharp as Giva's work but it would be *his*—a personal view of his ancestor's courage.

The slavers started firing their muskets when the boat was still fifty yards from its destination. Harrington had been hoping they would waste a few of their shots, but he still felt himself flinch when he saw the first flash. Everybody else in the boat had something to do. The hands had to row. Terry had to steer. He had to sit here and be a target.

He knew he should give his men a few words of encouragement but he couldn't think of a single phrase. His mind had become a blank sheet. Was he afraid? Was this what people meant when they said someone was *paralyzed*?

The slavers shoved two African women up to the rail. The men in the center of the firing line stepped aside and more slaves took their place.

"The swine," Dawkins said. "Bloody. Cowardly. *Bastards*."

Black faces stared at the oncoming boat. Harrington peered at their

stupefied expressions and realized they didn't have the slightest idea they were being used as shields. They had been pushed in chains along trails that might be hundreds of miles long. They had been packed into a hold as if they were kegs of rum. They were surrounded by men who didn't speak their language. By now they must be living in a fog.

"Make sure you aim before you shoot. Make these animals feel every ball you fire."

He was bellowing with rage. He would have stood up in the boat if he hadn't been restrained by years of training. He knew he was giving his men a stupid order. He knew there was no way they could shoot with that kind of accuracy. It didn't matter. The slavers had provoked emotions that were as uncontrollable as a hurricane.

More slaves were shoved to the railing. Muskets banged. Slavers were actually resting their guns on the shoulders of the slaves they were using for cover.

"We're inside their guns," Terry yelled. "I'll take us forward."

Harrington pointed at a spot just aft of the forward gun. "Take us there. Between one and two. First party—stow your oars. Shoulder your muskets. Wait for my order."

They had worked this out before they had boarded the boat. Half the men would guide the boat during the final approach. The other half would pick up their muskets and prepare to fight.

Giva had stopped making comments. Her face had acquired the taut, focused lines of a musician or athlete who was working at the limits of her capacity. She was scanning the drama taking place outside the bubble while she simultaneously tracked the images on six screens and adjusted angles and subjects with quick, decisive motions of her hands.

Emory had noted the change in her attitude and turned his attention to his own record. What difference did it make how she felt? The people who saw the finished product would see brave men hurling themselves into danger. Would anybody really care why they did it?

Musket balls cracked in the air around the boat. Metal hammered on the hull. Four members of the slaver crew were running toward the spot where Harrington planned to board. The rest of them were staying near the middle and firing over their human shields.

"Hold her against the side," Harrington yelled. "Throw up the grappling hooks."

The four hands who had been given the job threw their grappling hooks at the rail. The man beside Harrington tugged at the rope, to make sure it was firm, and Harrington fired his first pistol at the ship and handed the gun to one of the rowers. He grabbed the rope and walked himself up the side of the hull, past the gun that jutted out of the port on his left. His cutlass dangled from a loop around his wrist.

He knew he would be most vulnerable when he went over the rail. His hands would be occupied. He would be exposed to gunfire and hand to hand attacks. He seized the rail with both hands as soon as he came in reach and pulled himself over before he could hesitate.

Four men were crouching on the roof of the rear deckhouse. A gun flamed. Harrington jerked his left pistol out of his belt and fired back. He charged at the deckhouse with his cutlass raised.

The slavers fired their guns and scampered off the deckhouse. Harrington turned toward the bow, toward the men who were using the slaves as shields. His boarding party was crowding over the rails. He had half a dozen men scattered beside him. Most of them were firing their muskets at the slavers and their flesh and blood bulwarks.

"Use your cutlasses! Make these bastards bleed!"

He ran across the deck with his cutlass held high. He could hear himself screaming like a wild man. He had tried to think about the best way to attack while they had been crossing the water. Now he had stopped thinking. They couldn't stand on the deck and let the animals shoot at them.

The Africans' eyes widened. They twisted away from the lunatics rushing toward them and started pushing against the bodies behind them. The slavers had overlooked an important fact—they were hiding behind a wall that was composed of conscious, intelligent creatures.

The African directly in front of Harrington was a woman. She couldn't turn her back on him because of her chains, but she had managed to make a half turn. The man looming behind her was so tall she didn't reach his shoulder. The man was pointing a pistol at Harrington and the woman was clawing at his face with one hand.

The pistol sounded like a cannon when it fired. Harrington covered the deck in front of him in two huge leaps—the longest leaps he had ever taken—and brought his cutlass down on the slaver with both hands.

Steel sliced through cloth and bit into the slaver's collarbone. The man's mouth gaped open. He fell back and Harrington shouldered the female slave aside and hoisted his legs over the chain dangling between her and the captive on her right.

Emory was clamping his jaw on the kind of bellow overwrought fans emitted at sports events. Giva had shifted the bubble to a location twenty-five meters from the side of the slave ship. He could see and hear every detail of Harrington's headlong rush.

Half a dozen men had joined Harrington's assault. More had fallen in behind as they had come over the side. Most of the men in the first rank were running at a crouch, about a step behind their captain. One sailor was holding his hand in front of his face, as if he thought he could stop a bullet with his palm. Emory had been watching combat scenes ever since he was a boy, but no actor had ever captured the look on these men's faces—the intense, white faced concentration of men who knew they were facing real bullets.

A slaver backed away from the pummeling fists of a tall, ribby slave and fired at the oncoming sailors. For a moment Emory thought the shot had gone wild. Then he glanced toward the rear of the assault. A sailor who had just pulled himself over the side was sagging against the rail.

Giva had expanded her display to eight monitors. Her hands were flying across her screens as if she were conducting the action taking place on the ship.

The slavers in front of Harrington were all falling back. Most of them seemed to be climbing the rigging or ducking behind boats and deck gear. On his right, his men had stopped their rush and started working their muskets with a ragged, hasty imitation of the procedure he had drilled into them when he had decided it would be a useful skill if they ever actually boarded a ship. They would never load and fire like three-shots-to-the-minute redcoats but they were doing well enough for a combat against a gang who normally fought unarmed primitives.

The slaver captain—Captain Zachary?—was standing on the front deckhouse, just behind the rail. He stared at Harrington across the heads of the slavers who were scattered between them and Harrington realized he was pulling a rod out of the pistol he was holding in his left hand.

It was one of those moments when everything around you seemed to stand still. Harrington's cutlass dropped out of his hand. He reached for the pistol stuck in his belt. He pulled it out and cocked it—methodically, with no haste—with the heel of his left hand.

On the deckhouse, Zachary had poured a dab of powder into the firing pan without taking his eyes off Harrington. He cocked the gun with his thumb and clutched it in a solid two-handed grip as he raised it to the firing position.

"Look at that!" Emory said. "Are you getting that, Giva? They're facing each other like a pair of duelists."

If this had been a movie, Emory realized, the director would have captured the confrontation between Harrington and Zachary from at least three angles—one long shot to establish that they were facing each other, plus a close-up for each combatant. How did you work it when you were shooting the real thing and you couldn't re-enact it several times with the camera placed in different positions? He turned his head and peered at Giva's screens.

Giva's hands were hopping across her screens. She had centered the gunfight in a wideview, high angle shot in the second screen in her top row.

Zachary's hands flew apart. The tiny figure on Giva's screen sagged. The life-size figure standing on the real ship clutched at his stomach with both palms.

The captain of the slaver received a mortal bullet wound during the fray, Harrington had written. His removal from the melee soon took the fight out of our adversaries. There had been no mention that Harrington himself had fired the decisive shot.

"Is that all you got?" Emory said. "That one long shot?"

He had searched her screens twice, looking for a close-up of the duel. Half of Giva's screens seemed to be focused on the slaves.

Giva jabbed at her number three screen. Emory glanced at the scene on the ship and saw the African woman Harrington had shoved aside stiffening as if she was having a fit. The image on the screen zoomed to a close-up and the camera glimpsed a single glassy eye before the woman's head slumped forward.

Giva pulled the camera back and framed the body sprawling on the deck. The woman's only garment had been a piece of blue cloth she had wrapped around her breasts and hips. The big wound just above her left breast was clearly visible.

"You got him, sir! Right in the bastard's stomach!"

Bobby Dawkins was moving into a position on Harrington's right. He had a raised cutlass in his right hand and he was waving a pistol with his left.

More men took their places beside Dawkins. Nobody was actually stepping *between* Harrington and the enemy, but they were all making some effort to indicate they were willing to advance with their captain.

Harrington's hands had automatically stuffed the empty pistol into his belt. He dropped into an awkward crouch and picked up his cutlass. Most of the slavers in front of him were looking back at the deckhouse.

"You just lost the most dramatic event of the whole assault—something we'd never have guessed from the printed record."

"I can zoom in on the scene when I'm editing," Giva muttered. "I'm a pro, Emory. Let me work."

"So why do you need the close-up you just got? Why do you have so many cameras focused on the slaves? Couldn't you edit that later, too?"

Four hands were standing beside Harrington. Three more hands were standing a pair of steps behind them. Three of them had muskets pressed into their shoulders. The other four were cursing and grunting as they worked their way through various sections of the reloading drill.

"Hold your fire!" Harrington snapped. "Train your piece on a target but hold your fire."

He heard the jumpy excitement in his voice and knew it would never do. Use the voice you use when the wind is whipping across the deck, he told himself. Pretend you're thundering at the mast and Davey Clarke has the lookout.

His right arm was raising his sword above his head. "Your captain has fallen! *Yield. Lay down your arms.* Lay down your arms or I'll order my men to keep firing."

"Is that your idea of *scholarship*, Giva—another weepy epic about suffering victims?"

John Harrington knew he would be talking about this moment for the rest of his life. He knew he had managed to sound like a captain was supposed to sound—like a man who had absolute control of the situation, and assumed everyone who heard him would obey his orders. Now he had to see if they really would submit. He had to stand here, fully exposed to a stray shot, and give them time to respond.

Captain Zachary was slumping against the railing of the deckhouse with his hands clutching his stomach. The two slavers who were stand-

ing directly in front of him had turned toward Harrington when they had heard his roar. Their eyes settled on the muskets leveled at their chests.

Zachary raised his head. He muttered something Harrington couldn't understand. One of the slavers immediately dropped to one knee. He placed his pistol on the deck.

"The captain says to surrender," the sailor yelled. "He says get it over with."

Harrington lowered his sword. He pushed himself across the deck—it was one of the hardest things he had ever done—and picked up the musket.

"You have my sincerest thanks, Captain Zachary. You have saved us all much discomfort."

"This is *my* project, Emory. I was given complete control of the cameras and the final product. Do you have any idea what you and the whole chrono bureaucracy would look like if I handed in my resignation because you tried to bully me while I was doing my job?"

"I'm not trying to bully you. You're the one with the power in this situation. No one has to draw me a power flowchart. I'm got my own record of the dueling incident. Anybody who looks at my recording—or yours for that matter—can see you've ignored a dramatic, critical event and focused on a peripheral incident."

"Don't you think those *blackbirds* deserve a little attention, too? Do you think they're having a fun time caught between two groups of money-hungry berserkers?"

Dawkins was picking up the slavers' weapons as they collected near the starboard rail. Five other hands were aiming their muskets over the slavers' heads. Harrington had positioned the musket men six paces from their potential targets—close enough so they couldn't miss, far enough away so none of their prisoners convinced themselves they could engage in a rush before the muskets would fire.

The regulations said the slavers had to be transported to *Sparrow*. The prize crew he assigned to the slaver would have enough trouble looking after the Africans. How many prisoners could he put in each boatload as they made the transfer, given the number of men he could spare for guard duty? He could put the prisoners in irons, of course. But that might be too provocative. They had been operating in a milieu in which chains were associated with slavery and racial inferiority.

He turned to Terry, who had taken up a position behind the musket men. "Keep an eye on things, Mr. Terry. I think it's time I ventured into the hold."

The world around the space/time bubble turned black—the deepest blackness Emory had ever experienced. They had known it could happen at any time—they had even been exposed to simulations during their pre-location training—but the reality still made him freeze. There was nothing outside the bubble. *Nothing*.

The world snapped back. A male slave near the front of the ship was staring their way with his mouth gaping. He gestured with a frantic right hand and the elderly man beside him squinted in their direction.

Harrington had known the hold would stink. Every officer who had ever served in the West African squadron agreed on that. He had picked up the stench when the boat had approached the ship's side, but he had been too preoccupied to react to it. Now his stomach turned as soon as he settled his feet on the ladder.

In theory, the slavers were supposed to wash their cargo down, to fight disease and keep it alive until they could take their profit. In practice, nothing could eliminate the stink of hundreds of bodies pressed into their storage shelves like bales of cotton.

The noise was just as bad as the odor. Every captive in the hold seemed to be jabbering and screaming. The slaves in a cargo could come from every section of the continent. They were brought to the coast from the places where they had been captured—or bought from some native chief who had taken them prisoner during a tribal war—and assembled in big compounds before they were sold to the European slave traders. It would be a miracle if fifty of them spoke the same language.

He paused at the bottom of the ladder and stared at the patch of blue sky over the hatch. He was the commander of a British warship. Certain things were required.

He unhooked the lamp that hung beside the ladder and peered into the din. White eyes stared at him out of the darkness. A glance at the captives he saw told him Captain Zachary had adapted one of the standard plans. Each slave had been placed with his back between the legs of the slave behind him.

He had been listening to descriptions of slave holds since he had been a midshipman. He had assumed he had been prepared. The slaves had been arranged on three shelves, just as he had expected. They would spend most of the voyage staring at a ceiling a few inches above their faces. The passage that ran down the center of the hold was only a little wider than his shoulders.

"We have encountered a space/time instability," the hal said. "I must remind you an abort is strongly recommended."

"We have to stay," Emory said. "We haven't captured the liberation of the slaves. There's no finale."

The mission rules were clear. Two flickers and the hal would automatically abort. One, and they could stay if they thought it was worth the risk.

No one knew if those rules were necessary. The bureaucrats had established them and their electronic representative would enforce them. Time travel was a paradox and an impossibility. Intelligent people approached it with all the caution they would confer on a bomb with an unknown detonating mechanism.

Giva kept her eyes focused on her screens. If she voted with him, they would stay. If they split their vote, the hal would implement the "strong recommendation" it had received from its masters.

The slave who had pointed at them seemed to have been the only person who had seen the instability. There was no indication anyone else had noticed the apparition that had flickered beside the hull.

"I think we should stay," Giva said. "For now."

"The decision will be mandatorily reconsidered once every half hour. A termination may be initiated at any time."

Harrington made himself walk the entire length of the passage. He absorbed the odor. He let the clamor bang on his skull. He peered into the shelves on both sides every third step. He couldn't make his men come down here if he wasn't willing to do it himself.

On the deck, he had yielded to a flicker of sympathy for Zachary. Stomach wounds could inflict a painful slow death on their victims. Now he hoped Zachary took a whole month to die. And stayed fully conscious up to the last moment.

He marched back to the ladder with his eyes fixed straight ahead. He had lost his temper in the boat when he had seen Zachary's cutthroats using their captives as human shields. It had been an understandable lapse, but it couldn't happen twice in the same day. His ship and his crew depended on his judgment.

Terry glanced at him when he assumed his place on the deck. Most of the slaver's crew had joined the cluster of prisoners. Some of them even looked moderately cheerful. They all knew the court at Freetown would set them free within a month at the most. An occasional incarceration was one of the inconveniences of their trade.

"There should be at least four hundred," Harrington said. "Two thousand pounds minimum. And the value of the ship."

Emory made a mental calculation as he watched the first boatload of prisoners crawl toward the *Sparrow*. At the rate the boat was moving, given the time it had taken to load it, they were going to sit here for at least two more hours.

Giva was devoting half her screens to the crew and half to the Africans, but he knew he would look like a fool if he objected. The crew were stolidly holding their guns on their prisoners. The Africans were talking among themselves. The two Africans who were chained on either side of the fallen woman had dropped to their knees beside her.

The moment when the slaves would be brought into the sunlight was the moment Emory considered the emotional climax of the whole episode. He had been so enthusiastic when he described it during their planning sessions that Peter LeGrundy had told him he sounded as if he had already seen it.

I ordered the liberated captives brought to the deck as circumstances allowed, Harrington had written. They did not fully comprehend their change in status, and I could not explain it. Our small craft does not contain a translator among its complement. But the sight of so many souls rescued from such a terrible destiny stimulated the deepest feelings of satisfaction in every heart capable of such sentiments.

* * *

"You think we could press this lad, Captain? We could use some of that muscle."

Harrington turned his head. He had decided he should let the men standing guard take a few minutes rest, one at a time. Dawkins had wandered over the deck to the Africans and stopped in front of a particularly muscular specimen.

"I wouldn't get too close if I were you," Harrington said. "We still haven't given him any reason to think we're his friends."

Dawkins raised his hands in mock fright. He scurried back two steps and Harrington let himself yield to a smile.

"We'd get a sight more than five pounds for you if we took you to Brazil," Dawkins said to the African. "A nigger like you would fetch three hundred clean if he scowled at white people like that for the rest of his black life."

Giva was smiling again. She hadn't said anything about the way the British sailors used the word *blackbird*, but Emory was certain she was noting every use she recorded. Emory had first encountered the word when he had started collecting memoirs and letters penned by men who had served in the anti-slavery patrol. Slave trading had been called "blackbirding" and British sailors had apparently started applying the term to the people they were supposed to rescue. Peter LeGrundy claimed the British thought up insulting names for every kind of foreigner they met.

"They called Africans blackbirds and other derogatory terms," Peter had said, "in the same way they attached contemptuous epithets to most of the inhabitants of our planet. Frenchmen were called frogs, for example, apparently because there was some belief they were especially fond of eating frogs. People from Asian countries were called wogs—an ironic acronym for Worthy Oriental Gentlemen."

Harrington watched the next to last boatload pull away from the slaver. The mob of prisoners had been reduced to a group of seven. Three of the prisoners were crouching beside their captain and offering him sips of water and occasional words of encouragement.

"Mr. Terry—will you please take a party below and bring about fifty of the unfortunates on deck? Concentrate on women and children. We don't have the strength to handle too many restless young bucks."

"Your ancestor doesn't seem to have much confidence in his ability to handle the animals," Giva said. "What do they call the African women? Does?"

"If you will do a little research before you edit your creation," Emory said, "I believe you'll discover *British* young men were called young bucks, too. It was just a term for young men with young attitudes. They would have called *you* a restless young buck if you'd been born male, Giva."

Harrington hadn't tried black women yet. His sexual experience had been limited to encounters with the kind of females who lifted their skirts

for sailors in the Italian and South American ports he had visited on his first cruises. Bonfors claimed black women were more ardent than white women, but Bonfors liked to talk. It had been Harrington's experience that most of his shipmates believed *all* foreign women were more ardent than their English counterparts.

Some of the women Terry's men were ushering on deck looked as if they were younger than his sisters. Several were carrying infants. Most of them were wearing loose bits of cloth that exposed their legs and arms and other areas civilized women usually covered.

Harrington had read William Pitt's great speech on the abolition of the slave trade when he had been a boy, and he had read it again when his uncle had advised him the Admiralty had agreed to give him this command. There had been a time, Pitt had argued, when the inhabitants of ancient Britain had been just as savage and uncivilized as the inhabitants of modern Africa, "a time when even human sacrifices were offered on this island."

In those days, Pitt had suggested, some Roman senator could have pointed to *British barbarians* and predicted, "*There is a people that will never rise to civilization—there is a people destined never to be free—a people without the understanding necessary for the attainment of useful arts, depressed by the hand of nature below the level of the human species, and created to form a supply of slaves for the rest of the world.*"

The women in front of him might be barbarians. But they had, as Pitt had said, the potential to rise to the same levels the inhabitants of Britain had achieved. They had the right to live in freedom, so they might have the same opportunity to develop.

A woman sprawled on the deck as she emerged from the hatch. Two of the hands were pulling the captives through the opening. Two were probably pushing them from below.

One of the sailors on the deck bent over the fallen woman. His hand closed over her left breast.

"Now there's a proper young thing," the sailor said.

The sailor who was working with him broke out in a smile. "I can't say I'd have any objection to spending a few days on *this* prize crew."

The officer who was supposed to be supervising the operation—the gunnery officer, Mr. Terry—was standing just a step away. John Harrington had been watching the slaves stumble into the sunlight, but now he turned toward the bow and eyed the seven prisoners lounging in front of the forward deckhouse.

The next African out of the hatch was a scrawny boy who looked as if he might be somewhere around seven or eight, in Emory's unpracticed judgment. The woman who followed him—his mother?—received a long stroke on the side of her hip as she balanced herself against the roll of the ship.

"The African males don't seem to be the only restless young bucks," Giva said. "These boys have been locked up in that little ship for several weeks now, as I remember it."

"It has been one half hour since your last mandatory stay/go decision," the hal said. "Do you wish to stay or go, Mr. FitzGordon?"

"Stay."

"Do you wish to stay or go, Ms. Lombardo?"

"Stay, of course. We're getting some interesting insights into the attractions of African cruises."

Harrington ran his eyes over the rigging of the slaver. He should pick the most morally fastidious hands for the prize crew. But who could that be? Could any of them resist the opportunity after all these months at sea?

He could proclaim strict rules, of course. And order Terry to enforce them. But did he really want to subject his crew to the lash and the chain merely because they had succumbed to the most natural of urges? They were good men. They had just faced bullets and cannonballs to save five hundred human souls from the worst evil the modern world inflicted on its inhabitants.

And what if some of the women were willing? What if some of them offered themselves for money?

He could tell Terry to keep carnal activity to a minimum. But wouldn't that be the same as giving him permission to let the men indulge? He was the captain. Anything he said would have implications.

"Mr. Terry. Will you come over here, please?"

Harrington was murmuring but the microphones could still pick up the conversation.

"I'm placing you in command of the prize, Mr. Terry. I am entrusting its cargo to your good sense and decency."

"I understand," Terry said.

"These people may be savages but they are still our responsibility."

Emory nodded. Harrington was staring at the two men working the hatch as he talked. The frown on his face underlined every word he was uttering.

"That should take care of that matter," Emory said.

Giva turned away from her screens. "You really think that little speech will have an effect, Emory?"

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"Is there any reason to think it won't? He won't be riding with the prize crew. But that lieutenant knows what he's supposed to do."

"It was a standard piece of bureaucratic vagueness! It was exactly the kind of thing slot-fillers always say when they want to put a fence around their precious little careers."

"It was just as precise as it needed to be, Giva. Harrington and his officers all come from the same background. That lieutenant knows exactly what he's supposed to do. He doesn't need a lot of detail."

"When was the last time you held a job? I've been dealing with *managers* all my life. They always say things like that. The only thing you know when they're done is that you're going to be the one who gets butchered if anything goes wrong."

Harrington stood by the railing as the last group of prisoners took their places in the boat. A babble of conversation rang over the deck. The African captives they had brought out of the hold had mingled with the captives who had been used as shields and they were all chattering away like guests at a lawn party.

It was an exhilarating sight. He had never felt so completely satisfied with the world. Five hours ago the people standing on the deck had been crowded into the hell below decks, with their future lives reduced to weeks of torment in the hold, followed by years of brutal servitude when they finally made land. Now they merely had to endure a three-or four-day voyage to the British colony in Freetown. Half of them would probably become farmers in the land around Freetown. Some would join British regiments. Many would go to the West Indies as laborers—but they would be indentured laborers, not slaves, free to take up their own lives when they had worked off their passage. A few would even acquire an education in the schools the missionaries had established in Freetown and begin their own personal rise toward civilization.

He had raised the flag above the slaver with his own hands. Several of the Africans had pointed at it and launched into excited comments when it was only a third of the way up the mast. He could still see some of them pointing and obviously explaining its significance to the newcomers. Some of them had even pointed at *him*. Most liberated slaves came from the interior. The captives who came from the coast would know about the anti-slavery patrol. They would understand the significance of the flag and the blue coat.

"We're all loaded and ready, sir."

Harrington turned away from the deck. The last prisoner had settled into his seat in the boat.

He nodded at Terry and Terry nodded back. The hands had managed to slip in a few more pawings under the guise of being helpful, but Terry seemed to have the overall situation under control.

"She's your ship, Mr. Terry. I'll send you the final word on your prize crew as soon as I've conferred with Mr. Bonfors."

"It looks to me like it's about time we hopped for home," Giva said.

"Now? He's only brought one load of slaves on deck."

"You don't really think he's going to decorate the deck with more Africans, do you? Look at my screens. I'm getting two usable images of your ancestor returning to his ship. It's a high feel closure. All we need is a sunset."

"There's five hundred people in that hold. Don't you think he's going to give the rest of them a chance to breathe?"

"He exaggerated his report. Use your head, Emory. Would you go through all the hassle involved in controlling five hundred confused people when you knew they were only four or five days away from Freetown?"

"You are deliberately avoiding the most important scene in the entire drama. We'll never know what happened next if we go now."

"You're clinging to a fantasy. We're done. It's time to go. Hal—I request relocation to home base."

"I have a request for relocation to home base. Please confirm."

"I do not confirm. I insist that we—"

"Request confirmed, Hal. Request confirmed."

Time stopped. The universe blinked. A technology founded on the best contemporary scientific theories did something the best contemporary scientific theories said it couldn't do.

The rig dropped onto the padded stage in Transit Room One. The bubble had disappeared. Faces were peering at them through the windows that surrounded the room.

Giva jabbed her finger at the time strip mounted on the wall. They had been gone seven minutes and thirty-eight seconds local time.

"We were pushing it," Giva said. "We were pushing it more than either of us realized."

The average elapsed local time was three minutes—a fact they had both committed to memory the moment they had heard it during their first orientation lecture. The bump when they hit the stage had seemed harder than the bumps they had experienced during training, too. The engineers always set the return coordinates for a position two meters above the stage—a precaution that placed the surface of the stage just outside the margin of error and assured the passengers they wouldn't relocate *below* it. They had come home extra late and extra high. Giva would have some objective support for her decision to return.

The narrow armored hatch under the time strip swung open. An engineer hopped through it with a medic right behind her.

"Is everything all right?"

"I can't feel anything malfunctioning," Giva said. "We had a flicker about two hours before we told Hal to shoot us home."

Emory ripped off his seat belt. He jumped to his feet and the medic immediately dropped into his soothe-the-patient mode. "You really should sit down, Mr. FitzGordon. You shouldn't stand up until we've checked you out."

The soft, controlled tones only added more points to the spurs driving Emory's rage. Giva was sprawling in her chair, legs stretched in front of her, obviously doing her best to create the picture of the relaxed daredevil who had courageously held off until the last minute. And now the medic was treating him as if he was some kind of disoriented patient. . . .

He swung toward the medic and the man froze when he saw the hostile-

ity on Emory's face. He was a solid, broad shouldered type with a face that probably looked pleasant and experienced when he was helping chrononauts disembark. Now he slipped into a stance that looked like a slightly disguised en garde.

"You're back, Mr. FitzGordon. Everything's okay. We'll have you checked out and ready for debriefing before you know it."

Peter LeGrundy crouched through the hatch. He flashed his standard-issue smile at the two figures on the rig and Emory realized he had to get himself under control.

"So how did it go?" Peter said. "Did you have a nice trip?"

Emory forced his muscles to relax. He lowered his head and settled into the chair as if he were recovering from a momentary lapse—the kind of thing any normal human could feel when he had just violated the laws of physics and traveled through three centuries of time. He gave the medic a quick thumbs up and the medic nodded.

He had his own record of the event. He had Giva's comments. Above all, he had Peter LeGrundy. And Peter LeGrundy's ambitions. He could cover every grant Peter could need for the rest of Peter's scholarly career if he had to. The battle wasn't over. Not yet.

You need the creatives. The creatives need your money.

I ordered the liberated captives brought to the deck as circumstances allowed. They did not fully comprehend their change in status, and I could not explain it. Our small craft does not contain a translator among its complement. But the sight of so many souls rescued from such a terrible destiny stimulated the deepest feelings of satisfaction in every heart capable of such sentiments.

Two well-placed candles illuminated the paper on John Harrington's writing desk without casting distracting shadows. The creak of *Sparrow's* structure created a background that offered him a steady flow of information about the state of his command.

He lowered his pen. He had been struggling with his report for almost two hours. The emotions he had ignored during the battle had flooded over him as soon as he had closed the door of his cabin. The pistol that had roared in his face had exploded half a dozen times.

He shook his head and forced out a sentence advising the Admiralty he had placed Mr. Terry in command of the prize. He had already commended Terry's gunnery and his role in the assault. He had given Bonfors due mention. Dawkins and several other hands had been noted by name. The dead and the wounded had been properly honored.

It had been a small battle by the standards of the war against Napoleon. A skirmish really. Against an inept adversary. But the bullets had been real. Men had died. *He* could have died. He had boarded an enemy ship under fire. He had led a headlong assault at an enemy line. He had exchanged shots with the captain of the enemy.

The emotions he was feeling now would fade. One hard, unshakeable truth would remain. He had faced enemy fire and done his duty.

He had met the test. He had become the kind of man he had read about when he was a boy. ○

WHEN THE RADAR ALIENS COME

When the radar aliens come,
the ones whose shiny organic
oscilloscopes use radar as
we use light, we'll become
as ghosts and fairies.

Our machines—cars, guns,
cell phones, robots, boats—
will be real to them, waving
back radar as they do,
but we'll not wave back.

Becoming transparent and barely
audible, myths will live
on earth again, except
that we'll be the car nymphs
and cell sprites that, unseen,
cause their chips to spark.

Alien mutters will rise and fall
as they first fear, then invoke us,
but only those humans who
manifest skeletally via leg braces,
thematically via pacemakers,
or wildly, in tin foil helmets,
will be visible on Earth.

It will be different, to lose
our world not through violence
but through lack of
opacity, and to become
not extinct but mythical.
Not bad, per se. But different.

—Greg Beatty

MONSTER BLOOD TATTOO**Book One: Foundling****by D.M. Cornish****Putnam, \$18.99 (hc)****ISBN: 0-399-24638-X**

This is the first volume of a new fantasy series from a first-time author from Australia. The publishers are touting it as the next big thing—and have backed their prediction to the tune of a million-dollar advance. The perceived market is the young adult readership that has made Harry Potter a publishing phenomenon. But it seems a good bet to find an enthusiastic response among post-YA readers, as well—in other words, the likes of you and me.

The story is set in a large area known as the Half Continent, ruled by an Empire whose geography and history are reminiscent of China—although the feeling of the society is much closer to eighteenth-century England. We encounter our protagonist, Rosamund, as a young foundling just completing his education at a school designed to train its graduates for careers in the Navy. (The author's taste in character names is a bit cutesy for my taste.) A target for bullying because of his "girl's name," Rosamund retreats from his persecutors by reading romantic tales of monster-slayers—tales with a considerable grain of truth in this world, where humans and monsters contend for control of the land. The main action of the story begins when he is chosen as an apprentice lamp-lighter—an occupation sharply at

odds with his dreams of naval heroism.

He travels down river on a boat named *Hogshead*, which we quickly learn is not the one he is supposed to be on. Realizing his mistake, he escapes, and meets an aristocratic woman named Europe, who turns out to be a famous monster-slayer. In a battle with monsters, her servant is killed, and she drafts Rosamund as a substitute. But even his first sight of the real business of monster-slaying has raised doubts in his mind; the giant she overcomes immediately after their meeting seems an innocent, childlike creature, despite its huge size and fearsome strength.

But with no one else to guide and protect him, Rosamund must stay with Europe until they reach High Vesting, the southern city where he is supposed to find someone to take him to his new job. Equally importantly, she requires constant doses of powerful medications to overcome the radical surgery that has given her the power to fight monsters. Weakened by her fight with the giant, she needs Rosamund to formulate the potion, so the two are, for the time being, dependent on one another, even though Europe, as a powerful, prestigious adult, is definitely in charge.

By now, Rosamund's feelings about her are highly ambivalent. As a monster-slayer, she is among the most admired figures in the Empire, and he has always worshiped them as heroes. But at the same time,

Rosamund has begun to worry whether his sympathy for the giant he saw her kill makes him a *seditioner*, or "monster-lover," the lowest of the low in the Empire. For a lifelong admirer of the monster-slayers, this is a profoundly disturbing possibility.

They break their journey with a stay in the Harefoot Dig, a country inn where Europe recovers from her injuries and Rosamund becomes acquainted with a girl who has undertaken the lower level training to deal with the less menacing monsters that infest the local country. And they hook up with Fouracres, an imperial postman who is headed to High Vesting, and who seems to have a sort of understanding that allows him to pursue his rounds unmolested by the local monsters.

At last they arrive in High Vesting, where Rosamund once again encounters Poundinch, the half-outlaw riverboat captain with whom he began his journey to the city. He is taken prisoner, learns a frightening secret, then escapes and is reunited with his friends. He finally meets his contact for the new job, and is taken to the school where his advanced training will begin. At this point, the first volume ends.

The book is remarkable for its depth of world-building; Cornish not only supplies maps and illustrations, but a full and often witty glossary that is as much fun to read as the main text. While the youth of the protagonist and the coming-of-age theme are likely to invite comparison with the Harry Potter books, the relatively slow pace may reduce its appeal to the younger reader. A more apt parallel might be Susanna Clarke's *Dr. Strange and Mr. Norrell*, with which it compares favorably in richness of world-building and in a

sense of being a throwback to such models as Dickens and Fielding—although a reader of Jack Vance might find himself on familiar ground, as well. (The glossary and the author's obvious love of odd words both feel very Vance-like.)

In any case, *Monster Blood Tattoo* is a delightful find, and I'll await the subsequent volumes with considerable impatience.

THE NEW MOON'S ARMS

by Nalo Hopkinson

Warner, \$23.99 (hc)

ISBN: 0-446-57691-3

Hopkinson's latest is set in Caya-ba, an imaginary Caribbean nation spread over several small islands. The protagonist and narrator is Calamity Lambkin, fifty-some years old and still a bit on the wild side. We meet her at her father's funeral. Calamity is feeling the first effects of menopause—which, in her case, include an inconvenient psychic ability to find missing objects, including some that were just as well lost. We also meet her daughter Ife (who finds her mother's salty language and outspoken opinions embarrassing and old-fashioned) and her grandson Stanley.

Calamity's adventures begin when she meets a stranger at the graveyard and hitches a ride home from him after her car breaks down. She ends up having "funeral sex" with the stranger. Once he leaves, she gets drunk on her father's homemade liquor and falls asleep on the beach. She awakes next morning with a murderous hangover, and finds a small child in the sand, nearly drowned. Calamity fosters the child, whom she calls Agway, and attempts to discover his origins. Noting certain physical peculiarities suggestive of aquatic adaptations, she begins to

suspect that her foundling is one of the merpeople of Island lore—one of whom she glimpsed as a young girl.

To complicate things, her "finding" talent asserts itself as, in close tempo with hot flashes, objects from her past begin to reappear: toys and books from her childhood, a bloody machete, even the cashew grove her father planted on their home island. While this is handy as far as it provides toys for Agway, the appearance of a whole cashew grove in her front yard is a bit hard to explain to the neighbors. Luckily, most of them pay no attention to what happens around Calamity.

Hopkinson anchors these fantastic elements in a delightfully detailed picture of modern-day island life: the language, the customs, the politics (dominated by tourism and the influence of multinationals), and the daily life of those who, like Calamity, live somewhere between the traditional ways and the modern world. The cast includes characters from several strata of society—from a visiting marine biologist to Evelyn, a pediatrician who was Calamity's high school friend, to the neighbor woman who looks after Agway while Calamity goes to her job on the main island. Flashbacks give glimpses of Calamity's youth (her name then was "Chastity"), and a historical narrative from slave-trading days lays down a foundation for the contemporary narrative.

Hopkinson moves comfortably between comic realism, traditional fantasy, and carefully observed regional color. Chastity's telling of the story in island dialect is a particular pleasure—a good ear for the spoken word is uncommon in SF and fantasy, but in Hopkinson's hands, Chastity's voice rings out with delicious authenticity.

An unusual story in an evocative setting, told in inimitable style. Hopkinson continues to grow as one of our most original novelists.

ROLLBACK

by Robert J. Sawyer

Tor, \$24.95 (hc)

ISBN: 0-765-31108-9

Sawyer's latest is a near-future story combining two classic SF themes: SETI and life extension.

The two central characters are Sarah Halifax, an aging astronomer, and her husband Don (from whose point of view we see the story). Early in her career, Sarah managed to decipher a radio message sent by an extraterrestrial civilization. A reply was sent, and now, thirty-eight years later, a second message from the aliens has arrived. And it appears to be addressed directly to Sarah.

Now eighty-seven years old, Sarah has long since given up active work in her field, and it is clear that the new message, like the first, could take many years to decode, even with advanced computers. But Cody McGavin, a billionaire industrialist and major SETI buff, considers decoding the new alien message an overriding priority. McGavin offers Sarah a rejuvenation treatment normally available only to the super-rich. She accepts, on condition that her husband Don be given the treatments as well. The deal is cut, they undergo the procedures, and all appears to be well. In the bargain, the Halifaxes receive an advanced robot, one of their benefactor's products, to aid Sarah in her research.

Except, of course, all is not well. Don's treatment is a success; he finds himself progressively feeling stronger, more energetic, and he is beginning to appear as he did in his early twenties. But something has

gone wrong with Sarah, who not only does not appear to be regaining her youth, but who is clearly reacting badly to the rejuvenation treatment. In time they learn the reason: a cancer treatment decades ago, using experimental techniques, has prevented the rejuvenation from taking. Don will become young again, while Sarah will soon die.

Sawyer follows the diverging paths of Don and Sarah as Sarah, in her short remaining time, dedicates herself to learning what the aliens' new message says to us. A pivotal figure is a young female grad student, Sarah's research assistant, with whom Don comes into contact in the course of delivering materials from his wife—with predictable results.

Flashbacks give us the story of Sarah's initial breakthrough in understanding the aliens' message. Those scenes give us a glimpse of what extraterrestrials might have to communicate to a civilization so distant that physical contact between the two is wildly unlikely—in fact, probably impossible without the life-extension that forms the other leg of the story's extrapolations.

Sawyer does a good job of exploring the social and moral implications of the rejuvenation technology. Don's return to sexual activity sends him into a major guilt trip, and sets off sparks when he finally reveals their age difference to his new girlfriend. Sawyer also gets good material out of Don's shift—at least in appearance—into a demographic group with which he has very few tastes or experiences in common. As often in SF, a technical advance that seems an unalloyed blessing turns out to carry with it a wide range of unexpected consequences.

Characteristically, Sawyer is more interested in broader questions of

morality and social responsibility than in a fast-action yarn. While there are good bits of story here, the main thrust of the book is more aimed at provoking the reader's thoughts than in running up his heart rate. Still, the book delivers an emotionally satisfying conclusion, with a number of surprises at the finish.

ZIMA BLUE

by Alastair Reynolds

Night Shade, \$26.95 (hc)

ISBN: 1-59780-058-9

A short story collection from one of the major writers of what's become known as the New Space Opera. While Reynolds has made his reputation with sweeping tales on enormous canvases, he makes an impressive impact at shorter length, as well.

The selections here cover a ten-year period. It begins with Reynolds' earliest published work, which appeared in British magazines that most Americans rarely see. As a result, much of this book's contents will be new to most Americans, including those who regularly read magazine fiction. An introduction by Paul McAuley and Reynolds' brief afterwords to each story give a good idea of the author's approach and range. This book is a good starting point for readers who haven't yet picked up one of Reynolds' novels.

The title story shares a character with "The Real Story," which leads off the collection. In both, journalist Carrie Clay interviews a famous person about whom there is some mystery, in a world where the human lifespan has been greatly extended. "Real Story" is set on Mars, with Carrie trying to find the pilot who made the first landing on the planet, a century after the event; the

quest dissolves in complicated issues of identity. "Zima Blue" is the story of an artist, famed across the galaxy, whose art revolved around a particular shade—a color the significance of which becomes clear only at the story's end. Carrie is an interesting narrator, and Reynolds says he'd like to feature her again.

Two other linked stories: "Hide-away" and "Merlin's Gun," are far-future in setting. A generation ship fleeing powerful enemies provides the central plot hook. These two stories revolve around Merlin, who chafes against the timid decisions of the leaders of the expedition and ends up taking independent action. The two stories combine the sweep of space opera with an awareness of hard science, reminiscent of Niven's early work. Again, Reynolds has plans for more stories built around the main character.

"Signal to Noise," new in this collection, is a parallel-worlds story set in the near future. The protagonist, Mick, is given an experimental "nerve link" to allow him to take over the body of his counterpart in an alternate reality. The two worlds are remarkably similar in even minor details, right down to the two Micks both having the same wife, Andrea. Except that in the "original" world, Andrea has just been killed in an accident. Reynolds builds the story around Mick's attempts to connect with the Andrea of the other world, with the nerve link progressively deteriorating until after a week he must return entirely to his own world. The poignancy of this story, one of the best in the collection, shows that Reynolds doesn't need the large canvas to make a powerful statement.

"Understanding Space and Time," the next-to-last piece in the book, is

another small-scale near-future story. Here, a colony of explorers is stranded on Mars after a weaponized virus destroys all human life on Earth. The situation is similar to one of John Varley's favorite scenarios. But Reynolds gives it a quixotic twist when Renfrew, the last survivor of the Mars colony, begins seeing visions of a white grand piano, and of the man who plays it and sings to him—an exact image of Elton John! Gradually, they begin to carry on conversations, as Renfrew tries to learn more and more about the universe in hopes of making sense of his situation. The conclusion has overtones of Arthur C. Clarke, but with a dry wit that is characteristic of Reynolds. A striking performance, over the top and poignant at the same time.

Anyone who's enjoyed Reynolds' novels will find this story collection worth searching out—and perhaps if enough of us do, it'll give him more incentive to write new stories about Carrie Clay and Merlin—two characters it would be great fun to learn more about.

COSMIC JACKPOT
The Scientific Quest to
Explain Why the Universe
Is Just Right for Life
by Paul Davies
Houghton Mifflin, \$26.00 (hc)
ISBN: 0-618-59226-1

Here's a thought-provoking look at the Anthropic principle, which may be the single most controversial theory in current cosmology. Davies is an advocate of the principle, which argues that our being present to view the universe gives important information as to the way that universe is put together. This is either a stunning insight or an outright banality. I have always leaned toward

the latter position; but after reading Davies, I'm willing to look a bit harder at the issues raised by anthropism.

To give the lay reader a chance to follow his main points, Davies builds his argument slowly, spending the first half of the book outlining the current state of cosmology. The summary covers a range from such fundamental subjects as relativity and basic quantum theory to the newest of scientific puzzles: dark energy and M-theory.

With the essential groundwork laid, he brings up a key question. Many apparently fundamental properties of matter and of the forces that act upon it appear to be fine-tuned, in the sense that even small changes in them would have prevented the emergence of living beings. Even a minute change in the strength of gravity might prevent the formation of stars and planets, for example. Or a change in the strong force might mean that matter itself could never have come into existence. Other changes might do away with the excess of matter over antimatter created in the Big Bang, resulting in the universe's not coming into existence at all.

Why are these parameters at their observed values instead of some

equally plausible number? Many physicists would argue that the universe doesn't have to make sense, which seems logical enough. Now advocates of the anthropic principle counter with the idea that the universe we know is only one of many, each slightly different, making up a *multiverse*. (The idea is reminiscent of Michael Moorcock's fiction, although it also has foundations in a widely accepted modern interpretation of quantum mechanics.) According to this view, our universe's suitability for intelligent life is not some highly unlikely accident, but a matter of life's having arisen in an area suited to it. In an infinite multiverse, there should be many such areas, some bearing close resemblances to one another—so the science fictional treatments of the multiverse are perhaps not so wild, after all.

Davies is quick to admit that many cosmologists detest both the multiverse concept and the Anthropic principle. Still, it's good to have a book that lays out their primary features and the often fascinating questions they raise clearly and comprehensively—and doesn't dodge the controversy. Worth a look if only for the basic cosmology in the first half. ○

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JULY 2007

- 5-8—Origins. For info, write: 280 N. High #230, Columbus OH 43215. Or phone: (614) 255-4500 (10 AM to 10 PM, not collect). (Web) originsgames.com. (E-mail) info@originsgames.com. Con will be held in: Columbus OH (if city omitted, same as in address) at the Hyatt and Convention Center. Guests will include: none announced at press. Big gaming con.
- 6-8—ReaderCon. readercon.org. Marriott, Burlington MA. Lucius Shepard. For fans of written SF and fantasy.
- 6-8—InConJunction. inconjunction.org. Sheraton, Indianapolis IN. Guests to be announced.
- 6-8—Heinlein Centennial. heinleincentennial.com. Hyatt & Westin, Kansas City MO. R. A. Heinlein was born 7/7/1907.
- 6-8—Polaris. (416) 410-8266. tt-info@tcon.ca. DoubleTree Int'l. Plaza, Toronto ON. Media SF.
- 6-8—Perchance to Dream. home.earthlink.net/~mspded/. Radisson, Culver City CA. "Beauty & the Beast" TV show.
- 6-9—WesterCon. spfi.org. Doubletree, San Jose CA. Tad Williams, T. Mather, C. McGuire, Jay Lake. Big western con.
- 13-15—Shore Leave, Box 6809, Towson MD 21285. (410) 496-4456. Marriott, Hunt Valley MD. Star Trek & media SF.
- 13-15—ConnectiCon. connecticon.org. Hartford CT. "Over 3000 hours of programming." Gaming and anime meet.
- 13-15—San Japan. san-japan.org. Holiday Inn Select, San Antonio TX. T. Grant, K. Jinnai. Japanese anime & culture.
- 20-22—ConEstoga, Box 700776, Tulsa OK 74140. (918) 445-2064. stulsa.org. Radisson. L. K. Hamilton, J. Picacio.
- 20-22—TrinocCon, Box 10633, Raleigh NC 27605. trinoc-con.org. Hilton North. Guests to be announced.
- 20-22—OtaKon, 3470 Olney-Laytonville Rd., Olney MD 20832. otakon.org. Convention Center, Baltimore MD. Anime.
- 27-29—ConFluence, Box 3681, Pittsburgh PA 15230. parsec-sff.org. Airport Doubletree. "SF literature & music."
- 27-29—DemiCon, Box 7572, Des Moines IA 50232. demicon.org. Hotel Ft. Des Moines. Guests to be announced.
- 27-29—Dark Shadows Festival, Box 92, Maplewood NJ 07040. darkshadowsfestival.com. Renaissance, Hollywood CA.

AUGUST 2007

- 2-5—TuckerCon (formerly Archon), Box 8387, St. Louis MO 63132. archonstl.org. Collinsville IL. 2007 NASFiC. \$120.
- 3-5—Lazy Dragon Con, 420 Twin Knoll Dr., McKinney TX 75071. (972) 948-3320. lazydragon.com. Relax-a-con.
- 3-5—DiversiCon, Box 8036, Minneapolis MN 55408. diversicon.org. Bloomington MN. A. Hairston, Christopher Jones.
- 10-12—MythCon, c/o 2231 10th, Berkeley CA 94710. mythsoc.org. E. Kushner, D. Sherman. High fantasy (Tolkien, etc.).
- 10-12—ArmedilloCon, Box 27277, Austin TX 78755. fact.org. Guests to be announced. A general SF and fantasy con.
- 10-12—PiCon, Box 400, Sunderland MA 01375. pi-con.org. West Springfield MA. C.E. Murphy, Voltaire, Jeph Jacques.
- 16-19—GenCon, 120 Lakeside Ave. #100, Seattle WA 98122. gencon.com. Indianapolis IN. Big gaming convention.
- 24-26—BuboniCon, Box 37257, Albuquerque NM 87176. (505) 459-8734. bubonicon.com. V. Vinge, Lindskold, Stoutt.
- 24-27—World SF Reader Con. Chengdu China. Timed for easy combining with the Japanese WorldCon the next week.
- 30-Sep. 3—Nippon 2007, Box 314, Annapolis Jct. MD 20701. nippon2007.org. Yokohama Japan. WorldCon. \$220.
- 31-Sep. 3—DragonCon, Box 16459, Atlanta GA 30321. (770) 909-0115. dragoncon.org. Marriott & Hyatt. Huge.

AUGUST 2008

- 6-10—Denvention 3, Box 1349, Denver CO 80201. denver2008.com. Denver CO. WorldCon. \$130+.

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NEXT ISSUE

SEPTEMBER ISSUE

It's hard to believe our tremendous Thirtieth Anniversary Year is already more than half over. Don't fret, though—we at *Asimov's* aren't the kind to claim the glass is half-empty, and, as you'll see, we're just gaining more and more momentum during our frenetic fiction celebration. Let's just say that, by December, you might feel a shortness of breath from all of the entertaining, outstanding fiction we've planned for the coming months. Consider *Asimov's* mainstay **Robert Reed**, whose "The Caldera of Good Fortune," is our September lead story. This yarn features a most unique take on a tourist attraction of the future—the strange lake that periodically rises into the air, a lake inhabited by mysterious Luckies, and the lengths tourists will go to plumb its unexplored depths. Reed innovates once again with an exciting tale of adventure set against a world of speculative wonders. Don't miss it!

ALSO IN SEPTEMBER

That story alone might be enough to overwhelm your senses, but we're rigid in our course of filling an entire issue with science fiction that will effervesce within your brain. Fabulous **Nancy Kress** returns in September with her haunting parable about provincial illiterates of the future challenged "By Fools like Me." Also featured in September is new writer **Ted Kosmatka**, whose "The Prophet of Flores" presents the all-too-possible future if science had followed a more *traditional* course; popular writer **James Van Pelt** returns with "How Music Begins," the chilling story of a high-school band that must play on or suffer the alien consequences; new writer **Kim Zimring**, making her *Asimov's* debut, examines the moral ambiguities of a disease cure that may prove worse than the disease in "My Heart as Dry as Dust"; **Kit Reed** returns with "What Wolves Know," a story about a boy raised by wolves that will redefine how you feel about stories about boys raised by wolves; new writer **Pati Nagle** introduces us to a boy who's willing to brave the "Draw" to attempt a daring parental rescue; and last, but certainly not least, popular storyteller **R. Garcia y Robertson** returns with "The Good Ship Lollypop" in which a young adventuress encounters a terrifying Boogie Man in Garcia's action-packed future milieu of Supercats, dashing but cruel space pirates, and Greenie plant-people.

EXCITING FEATURES

Robert Silverberg's "Reflections" column posits that "Saddam Wasn't the Worst"; **Paul Di Filippo** brings us "On Books"; plus an array of cartoons, poems, and other features. Look for our September issue on sale at your newsstand on July 31, 2007. Or you can subscribe to *Asimov's*—by mail or online, in varying formats, including in downloadable form for your PDA, by going to our website, (www.asimovs.com)—and make sure that you don't miss any of the great stuff we have coming up for you!

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